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ABSTRACT

This document is a series of three workshops for principals and school leaders using a Pacific region cultural context. Its goal is to promote diverse thinking and opinions that will lead to discussions that, in turn, will have a positive impact on student achievement. Workshop settings are based on the bai, a traditional house where people gather for business and community activities. Because the bai is split into two sides, it is an ideal setting for presenting the two sides of a debate or of an issue, and is thus conducive for discussion and reflection on the workshop content. Workshop themes are: (1) Leader as Learner; (2) Leader as Sensemaker; and (3) Leader as Change Agent. Workshops are organized under seven headings for ease in leading activities: title of session, main ideas, desired outcomes, estimated time, materials list, directions for the facilitator, suggested readings/resources, handouts, and video cue guide. Appendices contain an introduction to Dr. Bruce Matsui, facilitator tools, techniques to encourage and promote group processes, sample evaluation forms for workshops, and a list of additional resources including websites and literature. The content of this module serves as foundational information and is intended to be part of ongoing staff development for administrators. (RT)

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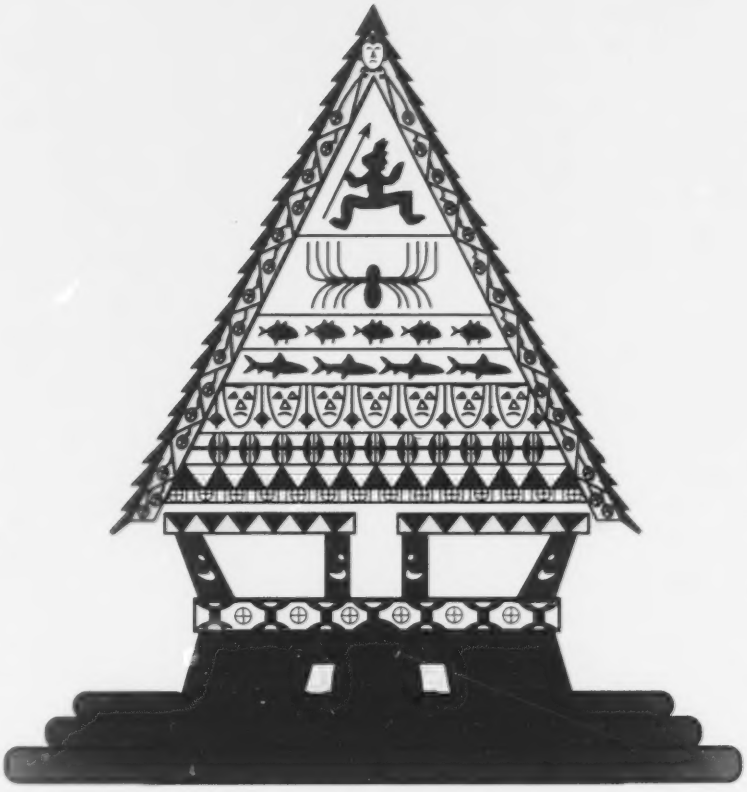

A Series of Professional Development Workshops for Principals and School Leaders

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Leadership Makes a Difference Video Series Guide

by Ms. Sandra E. Taosaka, PREL Program Specialist

Leadership Makes a Difference Video Series Credits

Introduction

Dr. John Kofel, President & Chief Executive Officer, Pacific Resources for Education and Learning (PREL)

Narrator

Dr. Juvenna Chang, Director of Regional Educational Laboratory Program (PREL)

Host

Dr. Bruce Matsui, Director of the Urban Leadership Center, School for Educational Studies Claremont Graduate University

Interviewees

Mr. Masa-Aki Emesiochl, Director of Curriculum and Instruction, Palau
Mr. Henry Falan, Director of Education, Yap State, FSM
Dr. Rita Hocog Inos, Commissioner of Education, CNMI
Mr. Gibson Mongkeya, Principal, Tafunsak Elementary School
Ms. Susan Moses, President, College of Micronesia, FSM
Ms. Eloise Sanchez, Associate Superintendent, Guam Department of Education
Ms. Hazel Sumile, Leeward District Superintendent, HIDOE
Mr. Kangichy Welle, Executive Director, Chuuk State School System

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Introduction

Leadership Makes a Difference is a series of workshops for principals and school leaders. Throughout this series, participants will have the chance to study leadership and how school administrators can turn the challenges they face into opportunities for success. This is important because the opportunities for this type of leadership are available to each school administrator on a daily basis.

You will notice that the *bai* is used throughout this manual. The *bai* is a traditional house made of thatched leaves and wood, held together by hibiscus fibers or other natural strong bonding materials, and built upon a raised stone foundation. It is usually referred to as the Traditional Men's Meeting House, but in fact, there are *bais* for women also. The *bai* served as a gathering place for those in the village both for business and for events such as feasts and welcoming ceremonies.

The *bai* was selected as an icon for this manual for several reasons. First, this series of workshops calls for the gathering of school leaders to learn and plan together. Secondly, the *bai* was traditionally split into two sides. It was configured in this manner so there would always be two sides to a debate, two sides to an issue. Similarly, this workshop encourages lots of discussion and reflection on the workshop content. We hope that diverse thinking and opinions will lead to rich discussions that have positive impact upon student achievement. Lastly, this training module and the accompanying video are like the stone foundation upon which the *bai* is built. The content of this module serves as foundational information and is intended to be part of ongoing staff development for administrators.

Tips on Using the Workshop Plans

Each workshop plan is organized with seven headings designed to guide the workshop leader through planning and facilitating each session. The headings are:

- **Title of Session**
  This will generally coincide with the video section title.

- **Main Ideas**
  The main ideas are the key learnings which should be emphasized as the facilitator conducts the exercises in the workshop plans. Facilitators may add other main ideas to modify the plans that better meet the needs of the audience.

- **Desired Outcomes**
  At the end of each workshop, participants will leave with certain skills or knowledge. Facilitators may need to plan for additional activities or practices should participant learning needs arise. The goal here is to plan for the participant's competence in the skills and concepts introduced in the workshop.

- **Estimated Time**
  This is a rough estimate of the amount of time needed for the workshop. Depending on the size of the group, facilitators may need to alter the time allotted for some of the activities.

- **Materials List**
  The list will cover such items as chart paper, handouts, etc.

- **Directions for the Facilitator**
  This section will give the facilitator details on presenting workshop material, conducting the various activities, and how to transition from one session to the next. Again, facilitators have the flexibility to modify these directions to meet the needs of the audience.

- **Suggested Readings/Resources**
  Whenever possible, sources are listed where facilitators can get more information on the area being studied.

- **Handouts**
  A page is labeled if it is a handout for participants. Copies of handouts will need to be made for all participants. If articles are assigned readings, copies will also need to be made for all participants

- **Video Cue Guide**
  A video cue guide is attached for use during the workshops. The guide is helpful if the presenter wants to cue to the video to a certain section for a particular workshop.

Video Cue Guide

Video Part One: Leader as Learner

1. **Generic Intro- (0:00-2:40)**

2. **Intro Leader as Learner- (2:41-3:44)**

3. **Gaining Wisdom- (3:45-7:14)**
   a. Interview: Mr. Kangichy Welle, Executive Director, Chuuk State School System - (6:22-6:52)

4. **Brain Research vs. Innate Model- (7:15-12:45)**
   a. Innate Ability Model- (7:30-10:19)
   b. Brain Research- (10:20-12:45)

5. **Learning Theories- (12:46-26:54)**
   a. Zone of Proximal Development (ZPD)- (14:57-21:14)
   b. Mediated Learning Experiences (MLE)- (21:15-24:45)
   c. Summary of ZPD & MLE: Dr. Bruce Matsui, Director of the Urban Leadership Center, School for Educational Studies Claremont Graduate University - (24:46-26:02)
   d. Interview: Dr. Rita Hocog Inos, Commissioner of Education, CNMI - (26:03-26:53)

6. **Resiliency Factors- (26:55-32:09)**
   a. Interview: Mr. Gibson Mongkeya, Principal, Tafunsak Elementary School - (31:51-32:09)

7. **Summary of Video Part One- (32:10-33:56)**
   Dr. Bruce Matsui

Video Part Two: Leader as Sensemaker (34:00)

1. **Intro Leader as Sensemaker- (34:00-35:49)**

2. **Seven Sensemaking Tools- (35:50-46:54)**
   a. Seven Tools- (35:50 -46:28)
   b. Interview: Ms. Eloise Sanchez, Associate Superintendent, Guam Department of Education - (46:29-46:54)

3. **Tipping Points- (46:55-59:58)**
   a. Tipping Points- (46:55 -55:01)
   b. Interview: Ms. Hazel Sumile, Leeward District Superintendent, HIDOE - (55:02-56:23)
   c. Standards Based Reform Example- (56:24-57:30)
   d. Ysleta Independent School District Example- (57:31-59:58)

4. **Summary Video Part Two- (59:59-1:01:08)**
   a. Summary Video Part Two: Dr. Juvenna Chang, Director of Regional Education Laboratory Program (PREL)- (59:59-1:00:38)
   b. Interview: Mr. Henry Falan, Director of Education, Yap State, FSM - (1:00:39-1:00:59)

Video Part Three: Leader as Change Agent (1:01:09)

1. **Intro Leader as Change Agent- (1:01:09-1:02:56)**

2. **Action Mapping- (1:02:57-1:15:40)**
   a. Action Mapping- (1:02:57-1:15:40)
   b. Interview: Ms. Susan Moses, President, College of Micronesia, FSM - (1:15:41-1:16:28)

3. **Action Mapping Example- (1:16:29-1:21:26)**

4. **Summary Video Part Three- (1:21:27-1:23:53)**
   a. Summary Video Part Three: Dr. Bruce Matsui - (1:21:27-1:23:14)
   b. Interview: Mr. Masa-Aki Emesiochl, Director of Curriculum and Instruction, Palau - (1:23:15-1:23:53)

5. **Summary of Video Series- (1:23:54-1:26:48)**
   a. Summary of Video Series: Dr. Bruce Matsui - (1:23:54-1:26:38)
   b. Quote: Greek Proverb- (1:26:38-1:26:48)

6. **Credits- (1:26:50-1:28:35)**

Workshop 1

Leader as Learner

Outline of Workshop 1: Leader as Learner

Main Ideas of Workshop 1:

- Leaders need to continually learn new concepts, gain wisdom, and become experts at what they do.
- Leaders must use theories on learning to attain the goal of success for all students.

Desired Outcomes for Workshop 1:

- Participants will understand learning theories and be able to identify ways they as leaders can apply theories to help all students succeed.
- Participants will be able to list sample learning opportunities based on theories introduced in the workshop.
- Participants will have an opportunity to apply learning theories to their school practices.

Estimated Time:

- The amount of time for the session will be dependent upon each individual facilitator. The readings and small group activities a facilitator selects will vary.

Materials List:

- Chart paper, pens, tape
- Labeled chart paper
- Handouts on Rubric for Powerful Learning Units
- Video Part 1: *Leader as Learner*
- Blank sheets of 8 1/2 x 11 paper for participants
- Large, unruled post-it-notes (at least 5 sheets per participant; 3x5 is suggested)
- Video study sheets
- Meaning-making handouts
- Theory in Practice handout
- "Power for Believing" article
- "Principles of Brain–Based Learning" article
- "Notes from Recent Brain Research" article
- "Learning How To Learn" article
- "Vygotsky" article

Directions for the Facilitator

Introduction

Because this is the first workshop in the series, you will need to create the environment to encourage participation, collaboration, and learning. Here are some suggested steps:

- Begin by briefly introducing yourself.
- Select an icebreaker activity from Appendix A based on the group's familiarity with each other. The purpose of the icebreaker is to introduce participants to each other and to have participants talk to one another in a non-threatening setting. This first activity establishes the comfort of the participants in sharing with each other.

Note: Avoid controversial and highly personal activities as icebreakers.

Agenda

- Review and explain desired outcomes with group.
- Explain that desired outcomes let participants know what knowledge or skills they will leave with at the end of the session.
- Give explanation of desired outcomes in Appendix B if needed.

Ground Rules

- Develop ground rules as part of the agenda.
- Explain to participants that in order to do all that we plan to do, we need to have some shared agreements.
- Develop shared agreements or "ground rules" as a group.
- Explain that ground rules establish the "norm" behaviors so the group can successfully reach the workshop desired outcomes.
- Establish and agree upon the ground rules.
- See sample ground rules in Appendix B.
- Please note that ground rules encourage all to participate while guarding against one or two participants monopolizing the conversations.
- Brainstorm a list of ground rules with participants.
- Keep the list up at each workshop.
- Add to the list if a need arises.

Characteristics of an Effective Leader

- Generate a list of qualities of effective leaders to bring participants' personal experiences to this session.
- Begin by asking participants to think about effective leaders that they know of. It could be a school leader, business leader, community leader, etc.

- Think about what that person does that makes him or her an effective leader (characteristics).
- You may start the brainstorming by suggesting that an effective leader is "knowledgeable in his or her field."
- Each participant should have about five large post-it-notes. Write one characteristic per post-it-note. Encourage participants to limit their description to three to five words. Allow approximately five minutes for this activity.
- Collect post-it-notes and place on a chart paper or board. Read qualities.
- Cluster similar qualities. Leave on board.
- Let participants know that you will be coming back to this list.

Video Introduction

- Introduce video as a means of sharing information on leadership.
- Briefly introduce Dr. Bruce Matsui. (see attached information on Dr. Matsui in Appendix A)
- Inform participants that the video involved leaders and school personnel from the region serviced by PREL.
- Distribute study sheet.
- Explain that these are key points that will be shared in the video.
- Participants must follow the video and take notes using the study sheet.
- Review the study sheet with participants allowing time to become familiar with the printed information.

Wisdom

- Begin a discussion on "wisdom."
- Ask the group what the possible definitions of wisdom are. The purpose here is to bring out cultural definitions and accept that wisdom means different things to different people.
- Explain that cultural definitions of wisdom are all acceptable. For the purpose of this video series, the definition of wisdom will be one focused on education and leaders of educational systems.
- Although the video does not explicitly refer to different cultural definitions, it is understood and accepted that participants will come with their own values on wisdom.
- Sample questions to ask include, "What is wisdom in your culture? What makes someone wise in your culture? Is having wisdom about social relationships valued more than other types of wisdom?"

Video Part One

- Begin **Video Part 1**, ***Leader as Learner***. Suggested activities are clustered in a section of the manual for easy reference.

Reflective Questions for Video Part One:

NOTE: The moderator of the video will present reflective questions throughout the video.

- You may want to stop the video to discuss the questions or assign questions as small group work sessions or as homework.
- Although the choice is left up to each facilitator, you may want to choose to stop the tape for discussion. This will help participants make meaning of the concepts presented before moving on to more information.
- Possible ways to conduct the discussions are by pairs, small groups, or discussing the questions as a large group. The structure you select will depend on the size of your group.

For Video Part One, these are the questions that will be asked:

- What are the skills and knowledge that teachers need in order to create Mediated Learning Experiences?
- How can we encourage our staff and community to embrace our school improvement efforts?
- What does "The rich get richer and the poor get poorer" mean?
- How do you ensure that all students have access to challenging curriculum?
- As leaders, how can we enhance the ability of the teacher to enter into the child's Zone of Proximal Development?
- How does this theory affect the way we group students?
- What are other implications of the Zone of Proximal Development?
- How can you as a leader enhance the ability of teachers to create Mediated Learning Experiences?
- How can you use teacher strengths to meet the diverse needs of students?
- How does this affect professional development planned for your teachers?
- How do you create a sense of belonging in your school?
- Are students given the opportunity to author substantive work?
- Is your school community providing adult sponsors?
- What instructional strategies can teachers use to help students persevere?
- How is your school addressing reading problems?

Facilitator's Notes on Mediated Learning Experiences

Who is Reuven Feuerstein?

Dr. Reuven Feuerstein is an internationally celebrated Israeli professor of psychology and a scholar in the study of child development. In his work with disadvantaged students, he developed pioneering methods of testing and teaching that have been used worldwide.

Along with other researchers, Dr. Feuerstein rejects the belief that individuals are born with certain intelligence while others are not. Dr. Feuerstein and his studies show that individuals have the potential to change if provided with the opportunities to engage in the right kinds of interaction.

Dr. Feuerstein has called the "right kinds of interaction," Mediated Learning Experiences. Mediated Learning Experiences allow individuals to develop efficient thinking skills that enable them to become independent learners.

Criteria of Mediation

The first three criteria for mediation will be covered by Dr. Matsui. They are: *intentionality*, *meaning*, and *transcendence*.

Mediation of intentionality occurs when:

- the mediator (teacher, parent, counselor, etc.) deliberately focuses the attention of the learner on some particular thing or stimulus. A classroom example is when the teacher directs attention by framing a stimulus: "Let's all gather closely around this painting. What colors make up the floral arrangement in the painting?" The mediator or teacher has selected a particular piece of the painting as a focus rather than following the learner in wherever his or her interest may lie.
- the teacher raises the students' interest and motivation in the subject matter and gets feedback from them. The students listen to and respond to the teacher in an environment that is non-threatening and promotes learning.
- the teacher is ready to adjust the situation when something is not understood. Special attention is given to slow and passive learners.
- the teacher is well prepared and the classroom is orderly.

Mediation of meaning occurs when:

- the mediator communicates the significance and purpose of an activity.
- the mediator shows interest and emotional involvement, discusses the importance of the activities with the learners, and asks for an understanding of why the activity should be done.

A classroom example is, "We are studying communities in order to understand the world we live in." The teacher conveys the value of subjects to the students.

- the teacher makes clear the fundamental strategies and skills to be used in the task.
- the teacher keeps student interest at a high level by introducing stimuli at differing times and with differing intensity.
- the teacher uses nonverbal behavior to convey meaning.
- the teacher acknowledges the meaning expressed by the students' responses.

Mediation of transcendence occurs when:

- an interaction or learning goes beyond the classroom or school setting.
- there is a larger and diverse use of the information or stimuli.
- the goal of mediating transcendence is to promote acquisition of skills and understandings that can be generalized to situations outside the classroom. A classroom example of transcendence is when the teacher asks the students to apply a rule learned to another situation. The teacher connects the subject of the lesson to previous or future subjects.
- the teacher utilizes "why" and "how" questions.
- the teacher evokes the students' need to seek and find complex relationships by providing bridging examples.

Source: *Mediated Learning In and Out of the Classroom*, Cognitive Research Program. University of the Witwatersrand, Skylight Publishing (1996).

Facilitator's Notes on Zone of Proximal Development

Who is Vygotsky?

Lev Vygotsky (1896-1934) was a teacher of literature. Beginning in 1924 he started working in the areas of developmental psychology, education, and psychopathology. Vygotsky pursued these areas until he died of tuberculosis in 1934 at a very young age. Due to a variety of reasons, including the political relationship between the United States and the Soviet Union, Vygotsky's work remained unknown in America for decades. When the Cold War ended, the work of Vygotsky began to emerge.

According to Vygotsky, cognitive skills and patterns of thinking are not primarily determined by innate factors, but are the products of the activities practiced. Language is a crucial tool for determining how the child will learn how to think because advanced modes of thought are transmitted to the child via words. Vygotsky also believed that learning affects and precedes development. The importance of the teacher and the act of teaching come to the forefront.

Zone of Proximal Development (ZPD)

- The Zone of Proximal Development (ZPD) is the difference between the child's capacity to solve problems on his own and his capacity to solve them with help.
- The actual developmental level refers to all the functions that a child can perform independently without the help of anyone else.
- The ZPD includes all the functions that a child can perform only with the assistance of someone else.
- The person who intervenes in this scaffolding process could be an adult or a peer who has already mastered that particular function.

Scaffolding

- Vygotsky is referring to the use of some type of assistance that temporarily will assist the student in mastering a particular piece of new learning.
- When the student has mastered the new piece, the scaffold is removed.
- Scaffolds also build upon the student's prior knowledge, building upon what the student already knows.

Source: "Vygotsky", Schutz & Kanomata, Ltda. (2000). Available online at www.sk.com.br.

Workshop 1

Leader as Learner

Video Study Sheets

(Handout)

Video Part One: Leader as Learner

Video Study Sheet 1

As you view Video Part 1, use this worksheet to jot down key ideas and for notes.

<u>Gaining Wisdom</u>

Effective leaders in the schools of the 21st century must have the capacity to:

- lead with wisdom and continually learn new concepts and skills;
- make sense of their environment and experiences and help others to understand them as well;
- become change agents who are capable of moving their school in a direction of sustained educational change that results in academic success for all students.

Identify the two stages of wisdom:

_____-getting people to fall in love with an idea.

_____-this calls for redundancy, or continuing to repeat the process until you have become an expert at it.

"We are what we repeatedly do.
Excellence, therefore, is not an
act but a habit."
-Aristotle

My Personal Notes on the Video

(Handout)

Brain Research versus Innate Model:

Innate Ability Model – favors one group of students at the expense of others.

Bell Shaped Curve – artifact of schools used to make decisions about students (i.e., grades, program placement and what kinds of assignments a student receives).

Sort and Label – schools continue to accept the fact that some students will excel and others will fail. Cycles of predictable failure will continue.

Matthew Effect – "The rich get richer and the poor get poorer" results from the innate ability model, and sorting and labeling.

Brain research tells us that:

- _____ is fluid and subject to modifiability.
- The brain has the ability to _____ when given challenging work.
- Who gets the challenging work in schools?
  KD kids? KS kids? VS kids?

My Personal Notes on the Video

Two-Dimensional Model of Powerful Instruction

Connectivity
- Manipulatives
- Representational
- Abstract

Instructional Deliveries
- Constructivism

Scaffolding
- Prior Learning

Comprehensible
- Understandable

Complex
- Problem-solving
- Meaning Making

Usable
- Use
- Retention
- Authentic

Zone of Proximal Development

Depth

Engagement

(Handout)

Video Part One: Leader as Learner

Video Study Sheet 2
Learning Theories

Key Learning:

- The teacher is key and can affect learning.
- Instructional leaders continuously examine the ways in which their schools are structured to make sure that all children have access to a challenging curriculum.

Vygotsky's Zone of Proximal Development (ZPD) is a concept whereby the teacher builds upon what the student already knows and makes connections to new learning. Think of a child whether he/she is learning to fish, weave, read, or multiply. An effective teacher must be able to identify a student's prior experiences and provide opportunities to increase learning and introduce new concepts. It's important for school leaders to understand the learning process and what happens between the teacher and student.

The ZPD incorporates six critical variables along two axes of *Depth* and *Engagement*.

Axis One: The Dimension of Depth

- _____ -when new information is introduced to a learner, it carries with it a great deal of uncertainty. To limit the amount of uncertainty one must pay close attention to the manner in which the new information is introduced.

- _____ -the learner should be provided with the opportunity to problem solve for himself. In the act of meaning making, *flow* is the enjoyable experience associated with mastering something new.

- _____ -learning remains artificial and episodic if it is stored and not used. Authentic learning represents the retention and use of new information.

My Personal Notes on the Video

Axis Two: The Dimension of Engagement

- _____-learning has to be experienced. Prior to the learning the learner must be connected to the new ideas in a meaningful and engaged way.

- _____-the ability to frame ideas in ways that form links with people is rooted in the method and skills associated with delivery. Delivery of ideas goes hand in hand with the idea of developing connections in that both represent levels of participatory engagement.

- _____-scaffolding is the act of framing new knowledge upon foundations of preexisting knowledge or prior insights.

Reuven Feuerstein's Mediated Learning supports the belief that teachers can affect a child's development and enhance his/her ability to learn by facilitating his/her learning experiences.

- _____-the intent of the mediator, the teacher, is to focus the attention of the learner on some particular thing.

- _____-the mediator helps the learner interpret the stimuli so that the experience has a special meaning that it might not have otherwise.

- _____-involves moving beyond the immediate needs of the current task to develop the potential to apply the lesson elsewhere in slightly different ways.

My Personal Notes on the Video

Resiliency

- As school leaders we must consider ways to improve learning for students who have traditionally _____so all students succeed.

- Resilient students are students who succeed despite challenges that should have led to their failure.

A resilient student has:

- A sense of belonging
- Opportunities to author works
- A relationship with a sponsor
- Perseverance
- The ability to read

My Personal Notes on the Video

Workshop 1

Leader as Learner

Suggested Activities for Participants

Activity to Follow Video Part One: These are activities the facilitator may choose to use as workshop activities or homework assignments.

Carousel Walk Activity

- Review the first section of the study guide and what it says about effective leaders.
- Have three sheets of chart paper and label: *(facilitator prepares ahead of time)*
  - Effective leaders learn new concepts.
  - Effective leaders understand their environment and help others to understand.
  - Effective leaders are change agents.
- Divide the participants into three groups.
- Give each group some post-it-notes from the first activity where participants wrote about effective leaders they know.
- Have them place the post-it-notes of characteristics onto one of the labeled charts.
- When each group is done, have them do a carousel walk to discuss how and why each quality matches the chart. This will increase their understanding of the concepts introduced by Dr. Matsui – making personal connections to his ideas.
- Directions for the carousel walk are in Appendix C– Group Processes.
- Ask participants for their reaction to the activity. Lead them to the understanding that once we place a "label" on a behavior and understand what the positive impact is, we then continue the behavior on a more conscious level.

Professional Reading Activity

- Distribute the article "The Power of Believing" and "Meaning Making Sheet" to each participant.
- Allow 20-30 minutes for individual reading and completion of Meaning Making Sheet.
- As participants read, ask them to use the Meaning Making Sheet. On the left side of the sheet (note taking), they are to jot down statements from the article that strike them as important. On the right side of the sheet (Meaning Making) next to the author's statement, participants are to jot down their reactions to the author's statement and any implications for what they just heard about the innate vs. efficacy, or other theories.
- Participants may also note how the articles compare with their own beliefs about learning.

- When reading time is over, have participants gather in groups of two or three to share their Meaning Making Sheets.
- Participants can focus on the personal meaning the article had for them.
- Participants should also discuss what implications for teaching and learning they can see based on "The Power of Believing."
- Allow 30-40 minutes for sharing.
- At the end of the sharing time, ask each pair or trio to come up with a group consensus of one or two implications for teaching and learning based on the article.
- Ask each small group to share their consensus statement on implications for the classroom.
- One example of a classroom implication is that teachers need a repertoire of teaching strategies to meet the diverse needs of the students.
- One strategy will not meet all needs and the teacher will want to search for strategies that will work for different learners vs. one strategy or activity for all students.
- Have a few groups share their group statements.
- Lead them to the discussion that in order to accomplish the goal set in the first part of the video (success for all students) we must have the belief that we can and do make a difference in student success. How can we support that belief?

RESEARCH REPORT

THE POWER OF BELIEVING

By Barbara J. Weber and Les M. Omotani

Research on teacher efficacy suggests that when teachers believe they can influence student learning, they usually do

"SOME OF MY STUDENTS COME FROM SUCH poor homes, they just don't care about school," says one teacher. "The exam I gave last week came out just about like I expected—some A's and B's, a lot of C's, some D's and F's," says another. And a third teacher in the same group adds, "It's inevitable that some students just can't learn."

Compare these statements with comments from a second group of teachers: "I believe I can teach students who've been labeled 'unteachable.'" "I expect all of my students to learn." "I just need to think of a new way to try to help Jason."

Without ever stepping foot into the classrooms of these teachers, we can make a number of well-informed predictions. For example, the students of the first group of teachers are likely to have a low regard for their own abilities. They might not be motivated to do well in school, and they probably will not achieve as well as other students of equal ability. The students of the second group of teachers, on the other hand, probably think highly of themselves and their abilities; they will be on task and motivated, and they will achieve well.

We can tell something else, as well. The teachers in the first group have in common a low sense of self-efficacy; that is, they do not believe they can influence how well students learn—especially difficult students or those who are not motivated. The teachers in the second group, in contrast, have a high sense of self-efficacy.

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Much of the research on teacher efficacy has been based on the work of psychologist Albert Bandura, who developed the theory of self-efficacy as a mechanism for behavioral change. The idea was introduced into education research in two RAND Corp. studies that measured teachers' efficacy using the total score on two items. Teachers were asked to indicate, on a five-point scale, the degree to which they agreed with these two statements:

1. When it comes right down to it, a teacher really can't do much because most of a student's motivation and performance depends on his or her home environment.
2. If I really try hard, I can get through to even the most difficult or unmotivated students.

The attitudes expressed in the first item have come to be labeled *teaching efficacy*—that is, the belief that *any* teacher's ability to bring about student achievement is limited by factors beyond the teacher's control, such as home environment, family background, and parental influence. The second item has come to be labeled *personal efficacy*—the belief in the teacher's *own* ability to influence student learning.

Using the two items to measure teachers' beliefs, researchers report that at least four different combinations are possible: (1) Most teachers cannot motivate students to learn, and neither can I; (2) most teachers can motivate students to learn, but I can't; (3) most teachers can motivate students to learn, and so can I; and (4) most teachers cannot motivate students to learn, but I can.

Efficacy and achievement

A number of studies have found a positive relationship between the teacher's sense of efficacy and the students' classroom achievement. (See the Selected References.) In fact, RAND researchers call teacher efficacy

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the single most "powerful explanatory variable" in student performance. It's not surprising, then that high-efficacy teachers typically produce high-achieving students, and low-efficacy teachers tend to produce lower-achieving students.

The real question is why.

One reason appears to be that teachers with a low sense of efficacy place responsibility for learning on the students. When students fail, these teachers look for explanations in nonschool factors, such as ability, motivation, or family background. Teachers with a high sense of efficacy, in contrast, take personal responsibility for students' learning. When students fail, these teachers examine their own performance and look for ways they might have been more helpful. The more responsible a teacher feels for making sure students learn, the more likely the teacher will be not to give up in the face of students' difficulty—and, perhaps more important, not to convey to the child that he or she is inadequate or incapable.

Other characteristics of low-efficacy teachers also take their toll on student achievement. In a report prepared for the U.S. Department of Education's National Institute of Education, researchers P.T. Ashton, R.B. Webb, and N. Doda arrived at the following findings:

- Low-efficacy teachers hold low academic standards for low-achieving students; in contrast, high-efficacy teachers hold higher standards for the same students.
- Low-efficacy teachers are less likely to monitor the on-task behavior of low-achieving students, while high-efficacy teachers concentrate on academics and insist that all students remain on task.
- Low-efficacy teachers tend to have negative attitudes toward low-achieving students (seeing them, for example, as threatening) and tend to use negative means of controlling them. High-efficacy teachers, in contrast, are more likely to define low-achieving students as reachable, teachable, and worthy of attention and are more likely to build friendly, nonthreatening relationships with these students.
- Low-efficacy teachers tend to sort and stratify their classes according to ability and concentrate their efforts and affection on high-achieving students.

In the classrooms of low-efficacy teachers, then, it's logical that already successful students continue to achieve, while students who are having difficulty continue to struggle or fail—the result of minimal effort and low expectations on the part of the teacher. It's a self-fulfilling prophecy. Good students get better, and poor students get worse.

Besides this dissimilar treatment of students of differing abilities, classroom observations of high-efficacy and low-efficacy elementary school teachers have turned up other differences in behavior that lead to differences in student achievement. (See the sidebar.) And not surprisingly, high efficacy on the teacher's part usually goes hand in hand with high achievement on the part of students.

Like student, like teacher

The vast majority of teachers can be highly effective, caring, dedicated, and successful. Unfortunately, however, a small number of teachers do not meet this standard. Just as student achievement often appears to deteriorate after the move from elementary school to secondary school, so, too, does the level of teacher efficacy. One study of elementary and secondary teachers,

IN THE CLASSROOM

Researchers S. Gibson, M. Dembo, and others have identified the following differences in the way high-efficacy and low-efficacy elementary school teachers act in the classroom. These differences, the researchers say, lead to variations in student achievement:

- *Academic engaged learning time.* Research on teacher effectiveness shows that the most effective teachers use large-group instruction, which means more students are on task and learning. Less effective teachers, on the other hand, tend to work with individual students or small groups and are less able to provide appropriate supervision for the rest of the students. In classroom observations, low-efficacy teachers spend approximately 50 percent of their time in small-group instruction, compared to only 28 percent for high-efficacy teachers. Both groups of teachers use some small-group instruction, especially during reading, but the low-efficacy teachers are more likely to adhere rigidly to the format and routine; high-efficacy teachers operate more flexibly and are less flustered by interruptions.
- *Monitoring and feedback.* Low-efficacy teachers spend less time than high-efficacy teachers in monitoring and checking students' work, and when a student's response is incorrect, they are more likely to tell the student the correct answer or go on to another student. In contrast, high-efficacy teachers are more likely to ask students questions that will help them formulate answers and come to their own conclusions.
- *Classroom control.* Low-efficacy teachers see control as more important than high-efficacy teachers do. They are more likely to appear angered or threatened by misbehaving students, and they spend more energy coping with the environment.
- *Goals.* Low-efficacy teachers do not have specific goals for students. High-efficacy teachers, on the other hand, plan for student learning, set goals for themselves and their students, and identify strategies for achieving those goals.
- *Expectations.* Low-efficacy teachers expect students to fail, to react negatively, and to misbehave; as a result, their students have low expectations for themselves. High-efficacy teachers, in contrast, expect students to succeed and usually find that students meet those expectations.

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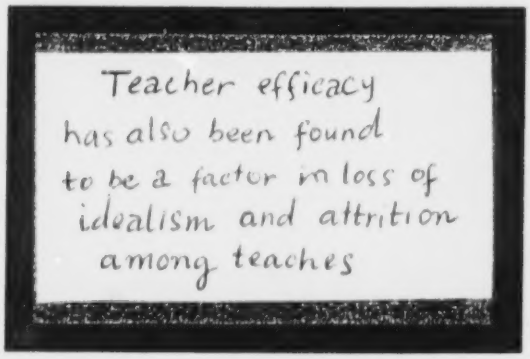
for example, concluded that elementary teachers in this study felt more efficacious than secondary teachers. Similarly, in a study of seventh-grade mathematics classrooms, researchers C. Midgley, H. Feldlaufer, and J. Eccles found that junior high school teachers felt significantly less efficacious than sixth-grade teachers.

That difference can have a significant impact on students—especially low-achieving ones. A later study by the same researchers found that students who move from high-efficacy elementary school teachers to low-efficacy junior high school teachers suffer more in terms of lowered expectations for themselves than do students who have low-efficacy teachers both years. Moving from a high-efficacy teacher in elementary school to a low-efficacy teacher in junior high is common, and that's unfortunate, because many schools assign teachers with a low sense of efficacy to low-achieving students—the very ones who most need the positive experience of working with a high-efficacy teacher.



Not surprisingly, teacher efficacy has also been found to be a factor in loss of idealism and attrition among teachers. Beginning teachers usually enter the profession with strong feelings of efficacy, but as their careers proceed, this attitude often deteriorates into a feeling of hopelessness. In fact, researchers report, the efficacy levels of teachers who leave the profession are significantly lower than those of either first-year teachers or fifth-year teachers who remain in the classroom. Asked whether they would rethink their career choice if given an opportunity, teachers who want to continue in education ended up with higher efficacy scores than those who don't.

It is also not surprising that the way a school is organized can have an effect on teachers' sense of efficacy. For example, after intensive interviews with teachers, P.T. Ashton and her colleagues reported that isolation and lack of support from colleagues and administrators make it difficult for teachers to maintain a strong sense of efficacy, as do difficulty in assessing teaching effectiveness and limited opportunity to make decisions. Similarly, other researchers have found that teachers who are involved in solving problems and making decisions about curriculum and instruction have a higher sense of efficacy.

Carrying the organization theme further, Ashton studied teacher efficacy levels in two schools with major organizational differences: a modern middle school and a traditional junior high. The middle school used interdisciplinary teams, multiage grouping, and teacher/advisers who met with students of various ages for 25 minutes a day. The teachers in this school were more satisfied with teaching than were their junior high colleagues, they were also more likely to believe they had the opportunity to affect students' lives significantly. The junior high school teachers, in contrast, were more likely to define their role as dealing with students' problems than as teaching academic subjects. These teachers looked on teaching as a burdensome profession and doubted they could have a significant impact on their students' lives.

Concluded Ashton: "The three organizational characteristics of the middle school—the team organization, the multiage grouping, and the adviser-advisee relationship of teacher and student—contributed to the maintenance of a sense of efficacy among the middle school teachers. The isolation and lack of collegial support in the junior high were related to the lower efficacy attitudes in the junior high."

Building efficacy

What can you and your colleagues in school management do to strengthen your teachers' sense of efficacy? The research has some suggestions.

The first is to consider how administrators and other staff members socialize new teachers into the school. Appropriate induction of beginning teachers into the profession is especially important, Ashton found, in view of the traumatic effect the first few weeks of classroom experience can have on a new teacher's sense of efficacy.

In his landmark work *School Teacher*, Dan Lortie concluded that a great deal of the socialization of a new teacher is the result of informal contact with experienced teachers and that this type of socialization can powerfully undercut a sense of efficacy. For example, as other researchers report, new teachers who arrive early, work hard, and stay late are often teased by more experienced staff members. When that happens, the new teacher quickly learns that enthusiasm and effort are not appropriate. Similarly, experienced teachers often impress on new teachers their own low sense of efficacy regarding certain students. "There's nothing we can do," the veteran teachers might say. "These kids can't learn." New teachers, in other words, are pressured to accept the dominant culture of the school.

To safeguard the new teacher's sense of efficacy during the abrupt transition from student-teacher to full-time teacher, Ashton and her colleagues suggest reducing the responsibilities of beginning teachers, allowing them to assume additional tasks gradually. The researchers also recommend creating professional, collegial relationships between new and experienced teachers that support, rather than discourage, efficacy, and designing evaluation systems that enhance rather than threaten teachers' efficacy. For example, a teacher evaluation system that is based on known criteria and clear standards, that focuses on personal reflection and supportive coaching for growth, and that is ongoing in nature is most likely to enhance a teacher's efficacy. In contrast, traditional one-shot evaluations performed by a building or district-level supervisor tend to disengage

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rather than engage the teacher and therefore reduce efficacy.

To strengthen teachers' sense of efficacy, it is also important to recognize the difference between teaching efficacy and personal efficacy. Appropriate corrective strategies for teachers who doubt their students' ability to learn are different from corrective strategies for teachers who question their own abilities. According to E. McDaniel and H. DeBella-McCarthy, efforts to raise the expectations of teachers with low teaching efficacy include collaboration with successful colleagues, shared problem solving, effective interaction with parents, administrative support, and evidence that students are learning. Teachers with low personal efficacy, on the other hand, benefit most from examining their own actions as teachers and assessing students' progress on an ongoing basis.

Similarly, you should understand how a person develops a sense of efficacy. Bandura describes four factors that influence self-efficacy, positively or negatively:

1. *Performance accomplishment, or the successful completion of a behavior.* Once people complete a task successfully, their confidence in their ability to repeat the task is increased. This is the most important source of self-efficacy. For teachers in staff-development settings, performance accomplishment can be bolstered through the use of demonstration lessons, simulated class activities, and peer coaching.

2. *Vicarious experiences, or watching others perform the task.* This is also an important source of efficacy—especially when the person performing the task seems similar to the observer. For teachers, in other words, a powerful source of efficacy would be watching other teachers deliver demonstration lessons and the like.

3. *Verbal persuasion, or the traditional lecture-type staff development.* This is the least effective way to increase efficacy, because verbal persuasion does not provide an authentic base of experience. Simply telling teachers to use particular methods of instruction doesn't work; teachers are likely to go on using strategies they already have confidence in.

4. *Emotional arousal, or a stressful, threatening situation.* Such situations have a negative effect on efficacy. Strong emotions usually debilitate performance, according to Bandura. People expect success and are more confident of their abilities when they are in a nonstressful, nonthreatening situation. In staff development, then, a low-stress environment will go further in helping teachers strengthen their sense of efficacy.

Finally, research on teacher preparation holds additional clues to developing a strong sense of efficacy. Preservice programs—and, by extension, in-service programs—should define the role of the teacher as being responsible for students' learning and having high expectations for students' success. At the same time, teacher training should prepare teachers to deal constructively with the student failures that do occur. Training should also emphasize human relations skills, including dealing with hostile students, expressing frustration, and handling anger. And researchers also recommend strong collegial support groups for prospective teachers, plus plenty of opportunities to observe the instruction of others.

Taken as a whole, the research literature on teacher efficacy shows that teachers who believe they can make a difference *do* make a difference. In contrast, those who believe they cannot be successful act in ways that ensure that prophecy will come true. Low-efficacy teachers fail both their students and themselves. But given appropriate support, encouragement, and development, these teachers, too, can be efficacious and effective.

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Meaning Making Worksheet

Note Taking (Quote from article)	Meaning Making (What it means to ME)

Preparing to Pull It All Together

- Divide participants into four groups. Each group will have a different article to read. Distribute to group A "Principles of Brain-Based Learning," group B "Notes for Recent Brain Research," Group C "Learning How To Learn," and to Group D "Vygotsky."

- Distribute direction sheets for each group. (See attached) Review directions for each group. Allow 60 minutes for this activity.

- At the end of 60 minutes have each group prepare a presentation to the larger group. They will need to share the key points of their article and what they should or could look for in the classroom to see if the practices in the articles are evident in their schools. For example, the MLE group can offer that teachers are providing opportunities for students to make connections beyond the classroom activity they just engaged in and cite specific examples.

Homework Assignment or An Activity During the Workshop:

- Explain to participants that we will now take an informal assessment of our school's practices by looking at classroom instruction.

- Participants are to conduct classroom visitations and look for evidences of teaching practices that support what we know about what brain research says about learning and/or Mediated Learning Experiences.

- Before conducting the classroom observation, participants should fill in the left side of the Classroom Observation Worksheet. They should predetermine what they as leaders will be looking for.

- Based on the observations, each participant is to reflect on what they as school leaders can do to facilitate MLE and brain-based research practices at their school.

- Distribute homework sheets and entertain any questions.

- Let participants know that they will be asked to share some of their homework assignments.

7

PRINCIPLES OF BRAIN-BASED LEARNING

We underrate our brains and our intelligence. Formal education has become such a complicated, self-conscious and overregulated activity that learning is widely regarded as something difficult that the brain would rather not do. . . . But reluctance to learn cannot be attributed to the brain. Learning is the brain's primary function, its constant concern, and we become restless and frustrated if there is no learning to be done. We are all capable of huge and unsuspected learning accomplishments without effort.

Frank Smith, *Insult to Intelligence*, 1986, p. 18

The previous chapters have presented a number of perspectives on how the human brain appears to work. Our objective here is to summarize the accumulated insights of the research dealt with thus far in a form that is of practical benefit to educators. The summary and consolidation takes the form of 12 principles that can serve as a general theoretical foundation for brain-based learning (see Caine, R.N., and Caine 1990). The principles also provide guidelines for defining and selecting programs and methodologies.

Education as an Open Quest

If these principles are as sound as we believe they are, then they provide us with a framework for learning and teaching that moves us irrevocably away from the methods and models that have dominated education for more than a century. The behavioral model, particularly as practiced in education, must be put to rest. What replaces

it is an open quest, bound primarily by the limitations we choose and place on ourselves and the dictates of the human brain itself. If we become overwhelmed by the lack of the right answer or procedure as we let go of certainty, we can perhaps seek comfort in the thought that above all else, brain-based learning opens doors. It is time that we moved on.

1. The Brain Is a Parallel Processor.

The human brain is always doing many things at one time (Ornstein and Sobel 1987). Thoughts, emotions, imagination, and predispositions operate simultaneously and interact with other modes of information processing and with the expansion of general social and cultural knowledge.

Implications for Education. Good teaching so "orchestrates" the learner's experience that all these aspects of brain operation are addressed. Teaching must, therefore, be based on theories and methodologies that guide the teacher to make orchestration possible. No one method or technique can adequately encompass the variations of the human brain. However, teachers need a frame of reference that enables them to select from the vast repertoire of methods and approaches that are available.

2. Learning Engages the Entire Physiology.

The interaction of the different parts of the triune brain attest, for instance, to the importance of a person's entire physiology. The brain is a physiological organ functioning according to physiological rules. Learning is as natural as breathing, but it can be either inhibited or facilitated. Neuron growth, nourishment, and interactions are integrally related to the perception and interpretation of experiences (Diamond 1985). Stress and threat affect the brain differently from peace, challenge, boredom, happiness, and contentment (see Ornstein and Sobel 1987). In fact, some aspects of the actual "wiring" of the brain are affected by school and life experiences.

Implications for Education. Everything that affects our physiological functioning affects our capacity to learn. Stress management, nutrition, exercise, and relaxation, as well as other facets of health management, must be fully incorporated into the learning process. Because many drugs, both prescribed and "recreational," inhibit learning, their use should also be curtailed and their effects understood. Habits and beliefs are also physiologically entrenched and therefore resistant or slow to change once they become a part of the personality.

In addition, the timing of learning is influenced by the natural development of both body and brain, as well as by individual and natural rhythms and cycles. There can be a five-year difference in maturation between any two children of the same age. Expecting equal achievement on the basis of chronological age is therefore inappropriate.

3. The Search for Meaning Is Innate.

The search for meaning (making sense of our experiences) and the consequential need to act on our environment are automatic. The search for meaning is survival oriented and basic to the human brain. The brain needs and automatically registers the familiar while simultaneously searching for and responding to novel stimuli (O'Keefe and Nadel 1978). This dual process is taking place every waking moment (and, some contend, while sleeping). Other research confirms the notion that people are meaning makers (see Chapter 8). The search for meaning cannot be stopped, only channelled and focused.

Implications for Education. The learning environment needs to provide stability and familiarity; this is part of the function of routine classroom behaviors and procedures. At the same time, provision must be made to satisfy our curiosity and hunger for novelty, discovery, and challenge. Lessons need to be generally exciting and meaningful and offer students an abundance of choices. The more positively lifelike such learning, the better. Many programs for gifted children take these implications for granted by combining a rich environment with complex and meaningful challenges. In our view, most of the creative methods used for teaching gifted students should be applied to all students.

4. The Search for Meaning Occurs Through "Patterning."

Patterning (Nummela and Rosengren 1986) refers to the meaningful organization and categorization of information. In a way, the brain is both artist and scientist, attempting to discern and understand patterns as they occur and giving expression to unique and creative patterns of its own (Hart 1983, Lakoff 1987, Nummela and Rosengren 1986, Rosenfield 1988). The brain is designed to perceive and generate patterns, and it resists having meaningless patterns imposed on it. "Meaningless" patterns are isolated pieces of information unrelated to what makes sense to a student. When the brain's natural capacity to integrate information is acknowledged and invoked in teaching, then vast amounts of initially unrelated or seemingly random

information and activities can be presented and assimilated. (The construction of meaning is discussed in depth in Chapter 8.)

Implications for Education. Learners are patterning, or perceiving and creating meanings, all the time in one way or another. We cannot stop them, but can influence the direction. Daydreaming is a way of patterning, as are problem solving and critical thinking. Although we choose much of what students are to learn, the ideal process is to present the information in a way that allows brains to extract patterns, rather than attempt to impose them. "Time on task" does not ensure appropriate patterning because the student may actually be engaged in "busy work" while the mind is somewhere else. For teaching to be really effective, a learner must be able to create meaningful and personally relevant patterns. This type of teaching is most clearly recognized by those advocating a whole-language approach to reading (Altweger, Edelsky, and Flores 1987; Goodman 1986), thematic teaching (Kovalik 1986), integration of the curriculum (Shalley 1987), and life-relevant approaches to learning.

5. Emotions Are Critical to Patterning.

We do not simply learn things. What we learn is influenced and organized by emotions and mind sets based on expectancy, personal biases and prejudices, degree of self-esteem, and the need for social interaction. Emotions and cognition cannot be separated (Halgren, Wilson, Squires, Engel, Walter, and Crandall 1983; Ornstein and Sobel 1987; Lakoff 1987; McGuinness and Pribram 1980). Emotions are also crucial to memory because they facilitate the storage and recall of information (Rosenfield 1988). Moreover, many emotions cannot be simply switched on and off. They operate on many levels, somewhat like the weather. They are ongoing, and the emotional impact of any lesson or life experience may continue to reverberate long after the specific event.

Implications for Education. Teachers need to understand that students' feelings and attitudes will be involved and will determine future learning. Because it is impossible to isolate the cognitive from the affective domain, the emotional climate in the school and classroom must be monitored on a consistent basis, using effective communication strategies and allowing for student and teacher reflection and metacognitive processes. In general, the entire environment needs to be supportive and marked by mutual respect and acceptance both within and beyond the classroom. Some of the most significant experiences in a student's life are fleeting "moments of truth," such as a chance encounter in a corridor with a relatively unknown teacher or, possibly, a "distant" administrator. These brief communications are often instinctive. Their emotional color depends on how "real" and profound the support of teachers, administrators, and students is for one another.

6. The Brain Processes Parts and Wholes Simultaneously.

There is evidence of brain laterality, meaning that there are significant differences between left and right hemispheres of the brain (Springer and Deutsch 1985). In a healthy person, however, the two hemispheres are inextricably interactive, whether a person is dealing with words, mathematics, music, or art (Hand 1984; Hart 1975; Levy, J. 1985). The "two brain" doctrine is most valuable as a metaphor that helps educators acknowledge two separate but simultaneous tendencies in the brain for organizing information. One is to reduce information into parts; the other is to perceive and work with it as a whole or series of wholes.

Implications for Education. People have enormous difficulty in learning when either parts or wholes are overlooked. Good teaching necessarily builds understanding and skills over time because learning is cumulative and developmental. However, parts and wholes are conceptually interactive. They derive meaning from and give it to each other. Thus vocabulary and grammar are best understood and mastered when incorporated in genuine, whole-language experiences. Similarly, equations and scientific principles should be dealt with in the context of living science.

7. Learning Involves Both Focused Attention and Peripheral Perception.

The brain absorbs information of which it is directly aware and to which it is paying attention. It also directly absorbs information and signals that lie beyond the field of attention. These may be stimuli that one perceives "out of the side of the eyes," such as grey and unattractive walls in a classroom. Peripheral stimuli also include the "light" or subtle signals that are within the field of attention but are still not consciously noticed (such as a hint of a smile or slight changes in body posture). This means that the brain responds to the entire sensory context in which teaching or communication occurs (O'Keefe and Nadel 1978).

One of Lozanov's fundamental principles is that every stimulus is coded, associated, and symbolized (Lozanov 1978a, b). Thus every sound, from a word to a siren, and every visual signal, from a blank screen to a raised finger, is packed full of complex meanings. For example, a simple knock on the door engages attention and is processed for possible meaning by reference both to much of a learner's prior knowledge and experience and to whatever is happening at the

moment. Peripheral information can therefore be purposely "organized" to facilitate learning.

Implications for Education. The teacher can and should organize materials that will be outside the focus of the learner's attention. In addition to traditional concerns with noise, temperature, and so on, peripherals include visuals such as charts, illustrations, set designs, and art, including great works of art. Barzakov (1988) recommends that art exhibits be changed frequently to reflect changes in learning focus. The use of music has also become important as a way to enhance and influence more natural acquisition of information. And the subtle signals that emanate from a teacher have a significant impact. Our inner state shows in skin color, muscular tension and posture, rate of breathing, and eye movements. Teachers need to engage the interests and enthusiasm of students through their own enthusiasm, coaching, and modeling, so that the unconscious signals appropriately relate to the importance and value of what is being learned. One reason that it is important to practice what we preach and, for example, to be genuinely compassionate rather than to fake compassion, is that our actual inner state is always signaled and discerned at some level by learners. Lozanov (1978b) coined the term "double planeness" to describe this internal and external congruence in a person. In the same way, the design and administration of a school send messages to students that shape what is learned. In effect, every aspect of a student's life, including community, family, and technology, affects student learning.

8. Learning Always Involves Conscious and Unconscious Processes.

We learn much more than we ever consciously understand. "What we are discovering . . . is that beneath the surface of awareness, an enormous amount of unconscious processing is going on" (Campbell 1989, p. 203). Most signals that are peripherally perceived enter the brain without the learner's awareness and interact at unconscious levels. "Having reached the brain, this information emerges in the consciousness with some delay, or it influences the motives and decisions" (Lozanov 1978b, p. 18). Thus we become our experiences and remember what we experience, not just what we are told. For example, a student can learn to sing on key and learn to hate singing at the same time. Teaching therefore needs to be designed in such a way as to help students benefit maximally from unconscious processing. In part, this is done by addressing the peripheral context (as described previously). In part, it is done through instruction.

Implications for Education. Much of the effort put into teaching and studying is wasted because students do not adequately process their experiences. What we call "active processing" allows students to review how and what they learned so that they begin to take charge of learning and the development of personal meanings. In part, active processing refers to reflection and metacognitive activities. One example might be students' becoming aware of their preferred learning style. Another might be the creative elaboration of procedures and theories by exploring metaphors and analogies to help in the reorganization of material in a way that makes it personally meaningful and valuable.

9. We Have at Least Two Different Types of Memory: A Spatial Memory System and a Set of Systems for Rote Learning.

We have a natural, spatial memory system that does not need rehearsal and allows for "instant" memory of experiences (Bransford and Johnson 1972; Nadel and Wilmer 1980; Nadel, Wilmer, and Kurz 1984). Remembering where and what we had for dinner last night does not require the use of memorization techniques. We have at least one memory system actually designed for registering our experiences in ordinary three-dimensional space (O'Keefe and Nadel 1978). The system is always engaged and is inexhaustible. It is possessed by people of both sexes and all nationalities and ethnic backgrounds. It is enriched over time as we increase the items, categories, and procedures that we take for granted. Thus there was a time when we did not know what a tree or a television was. The system is motivated by novelty. In fact, this is one of the systems that drives the search for meaning mentioned previously.

Facts and skills that are dealt with in isolation are organized differently by the brain and need much more practice and rehearsal. The counterpart of the spatial memory system is a set of systems specifically designed for storing relatively unrelated information. Nonsense syllables are an extreme case. The more separated information and skills are from prior knowledge and actual experience, the more dependence there needs to be on rote memory and repetition. We can compare this memory system to the inventory of an automobile shop. The more items are available, the more the shop can repair, build, and even design cars. It can also do so with greater ease and speed and less stress. At the same time, if management becomes too enamored of the stocking of inventory, and mechanics and designers fail to see how to use the materials available, then an imbalance has been created. In the same way, emphasizing the storage and recall of unconnected facts is an inefficient use of the brain.

Implications for Education. Educators are adept at the type of

teaching that focuses on memorization. Common examples include multiplication tables, spelling words, and unfamiliar vocabulary at the lower levels, and abstract concepts and sets of principles in different subjects for older students and adults. Sometimes memorization is important and useful. In general, however, teaching devoted to memorization does not facilitate the transfer of learning and probably interferes with the subsequent development of understanding. By ignoring the personal world of the learner, educators actually inhibit the effective functioning of the brain.

10. We Understand and Remember Best When Facts and Skills Are Embedded in Natural, Spatial Memory.

Our native language is learned through multiple interactive experiences involving vocabulary and grammar. It is shaped both by internal processes and by social interaction (Vygotsky 1978). That is an example of how specific "items" are given meaning when embedded in ordinary experiences. All education can be enhanced when this type of embedding is adopted. That is the single most important element that the new brain-based theories of learning have in common.

Implications for Education. The embedding process is complex because it depends on all the other principles discussed here. Spatial memory is generally best invoked through experiential learning, an approach that is valued more highly in some cultures than in others. Teachers need to use a great deal of real-life activity, including classroom demonstrations, projects, field trips, visual imagery of certain experiences and best performances, stories, metaphor, drama, and interaction of different subjects. Vocabulary can be experienced through skits. Grammar can be learned in process, through stories or writing. Mathematics, science, and history can be integrated so that much more information is understood and absorbed than is currently the norm. Success depends on using all of the senses and immersing the learner in a multitude of complex and interactive experiences. Lectures and analysis are not excluded, but they should be part of a larger experience.

11. Learning Is Enhanced by Challenge and Inhibited by Threat.

The brain downshifts under perceived threat and learns optimally when appropriately challenged. The brain will downshift under threat (Hart 1983). The central feature of downshifting is a sense of helplessness. As we mention in Chapter 6, it is accompanied by a narrowing of the perceptual field (Combs and Snygg 1949). The learner becomes less flexible and reverts to automatic and often more primitive routine behaviors. Downshifting is roughly like a camera lens that has a reduced focus. The hippocampus, a part of the limbic system, which appears to function partially as a relay center to the rest of the brain, is the region of the brain most sensitive to stress (Jacobs and Nadel 1985). Under perceived threat, portions of our brain function suboptimally.

Implications for Education. Teachers and administrators need to create a state of relaxed alertness in students. This combines general relaxation with an atmosphere that is low in threat and high in challenge. This state must continuously pervade the lesson, and must be present in the teacher. All the methodologies that are used to orchestrate the learning context influence the state of relaxed alertness.

12. Each Brain Is Unique.

Although we all have the same set of systems, including our senses and basic emotions, they are integrated differently in every brain. In addition, because learning actually changes the structure of the brain, the more we learn, the more unique we become.

Implications for Education. Teaching should be multifaceted to allow all students to express visual, tactile, emotional, and auditory preferences. There are other individual differences that also need to be considered. Providing choices that are variable enough to attract individual interests may require the reshaping of schools so that they exhibit the complexity found in life. In sum, education needs to facilitate optimal brain functioning.

Discarding Outmoded Assumptions

There are several general implications of the 12 principles. One is that the brain is a social brain (Gazzaniga 1985). Not only do all the regions interact, but we become what we are through our interactions with the community and the environment. This "becoming" is partly receptive and partly generative—we discover and we create. One of our fundamental tasks as educators, therefore, is to better appreciate the social construction of knowledge (see, e.g., Vygotsky 1978).

Another implication is that we are moved inexorably beyond the information-processing model of memory as the predominant paradigm for learning. For instance, as we mention in Chapter 4, an essential aspect of that model is the suggestion that we all have an information bottleneck. Of the wealth of information in the environment, the model suggests that we can place only a small amount in short-term memory at any one time. We are further advised that long-term memory depends on the processing and working of the

contents of short-term memory. To the extent that we have limited learning to such a scenario, we have actually precluded ourselves from taking advantage of the greater capacities of the human brain.

Clearly, we do have a limited capacity to focus attention. However, we indirectly perceive and respond to much that is happening in our total environment. Moreover, we process much of that information unconsciously. The consequence is that our focus of attention becomes a tool, like a spotlight, but it is not nearly as limiting as we have been led to believe. Students are capable of much more because everything is always operating in relationship to a much larger context.

What Educators Need to Do

Determining how to implement these principles is not a matter of preferring one specific methodology over another. In a recent ASCD yearbook, Madeline Hunter (1990) states:

> There are no teacher or student behaviors that have to be in every lesson. . . . We are . . . becoming sensitized to the appropriateness, artistry, and outcomes of what is occurring in the classroom. . . . This necessitates skill in selecting from a pharmacy of educational alternatives, not being committed to one "best way" (p. xiv).

We all have access to an extensive societal repertoire of strategies and methods. We need a way of selecting the methodologies that will maximize learning and make teaching more effective and fulfilling. The first task is to reconceptualize learning outcomes to deal with the primary importance of meaningfulness. We do that in the next chapter. It is an approach to education that recognizes the primacy of complex experience and regards learning as the art of capitalizing on experience. The three interactive elements of the process are spelled out in Chapters 9–11.

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NOTES FROM RECENT BRAIN RESEARCH

By Karen D. Olsen

"Most school practice arises from tradition, ritual, and the context within which schools are conducted. Only during this century has scientific learning theory had an influence, and then only in a minor way. The school is a kind of subculture in which are preserved the relics of former times, with a few practices added or subtracted because of contemporary thought." (Foshay)

There are several notions from recent brain research, sufficiently corroborated by researchers studying the brain from different perspectives to warrant our use of them as learning theory to guide any restructuring of curriculum and instruction. They are:

1) intelligence is a function of experience rather than of immutable genetics

2) the mind is a pattern-seeking device; it is not logical or sequential in the way it takes in and makes meaning of input

3) most information that we use is embedded in programs, a planned sequence to accomplish a purpose or goal

4) the brain has evolved over millions of years; its three "parts" have different functions among which we "downshift" and "upshift," accounting for sudden and mercurial shifts by youngsters

5) we have not one generic intelligence but at least seven, each of which operates from a different part of our brain

1) Intelligence is a Function of Experience

We used to be told that I.Q. was the great determiner of intelligence: smart mom and smart pop, then smart kiddo; conversely, not-so-smart mom and pop would result in a not-so-smart kid. Work by Marian Diamond, UC Berkeley, and Reuven Feuerstein, Israel, refute this popularly held credo. Feuerstein and his associates have even gone so far as to stipulate that "Genetics is no barrier to learning." If, they claim, you know how the brain learns, what happens physiologically, one can assist a learner to create new "hardware" in the mind to carry new learnings.

Marian Diamond's work (UC Berkeley) with rats and old people (not together!) has helped illustrate what happens inside the brain as the result of stimulation from an enriched environment. In Short, when we have an "experience" (an event associated with enthusiasm),

the electrical/chemical soup of the mind "wakes up" and neurons react by becoming larger and by growing dendrites, nerve fibers which sprout from the neuron and increase in density and complexity of connections.

As the dendrites grow and branch, a neuron becomes capable of "communicating" with 250,000+ other neurons. This physiological capability to make connections underlies common sense definitions of intelligence: "Someone who sees connections between things, sees metaphors that are useful in understanding how things work and how they can be used in new settings or for new purposes, etc." Physiologically, this build up of dendrites results in a denser brain, a heavier brain; intellectually, this build up results in greater intelligence. The moral to the story here is that **"Dittos do not make dendrites!"** That is to say that neither dittos nor the textbook and its accompanying workbook create an enriched environment which activates the brain to grow dendrites. In other words, every minute spent on what children experience as "seat work," boring, etc. is a minute spent NOT building intelligence.

Feuerstein's work with multiply handicapped (genetic and trauma-based) children and adults suggests that, if we understand that the neocortex is a process-oriented organ that builds its network of dendrites and synapses and how such networking gets laid down, the brain is sufficiently plastic as to make quantum leaps in learning. His construct of "mediated learning" is a powerful tool for teachers when working with all learners. (Accept Me As I Am by Reuven Feuerstein, et al)

The concept of "plasticity" and its counterbalancing concept of "canalization" are very important to the teacher in the classroom. Canalization refers to the tendency of the human nervous system to follow certain developmental paths rather than others, thus resulting in quite predictable "stages" in the growth and development of children - information particularly critical for teachers of younger students. On the other hand, however, the human brain is enormously flexible - good news to teachers at all levels, preschool through adult education.

This flexibility or "plasticity" shows itself in many ways. For example, there are certain developmental periods during which a wide range of environments can bring about or result in the successful development and learnings for that period. For example, whether a Mexican baby is heavily swaddled for most of the first year of its life or whether a Russian "superbaby" is born under water and spends a large portion of its early weeks swimming like a tadpole, both will still walk normally during their second year of life.

Several principles about plasticity are now generally agreed to: (Gardner, pp. 40-41)

- maximum flexibility occurs early in life
- there are "critical" periods during the process of development; irreversible damage or barriers to further development can occur in the wake of even mild restrictions (not to mention injury or damage) during such a critical period. (These so-called "critical

periods" are not unlike Maria Montessori's "sensitive periods" described many years ago.)

- the degree of flexibility differs across the region of the nervous system. Those developing later in childhood such as the frontal lobes are more malleable than those regions which develop in infancy and early childhood.
- an organism will fail to develop normally unless it undergoes certain experiences (albeit plasticity typically tolerates a range of inputs)
- while some injuries and deprivations result in immediate and obvious effects, *others may be invisible at first*

What has all this to do with a classroom teacher? Plenty! Restricted input can result in long term effects deleterious to learning. An "enriched environment," according to Marian Diamond's work, is associated with changes at the neuronal level in the brain, changes in the number of neurons dedicated to an area of operation and the size of the nuclei of the neurons, and the pattern and qualities of synaptic connections. (Gardner, p. 43) In loose terms, an enriched environment is one which causes the brain to remain actively engaged with objects and events.

Jane Healey, in her book, Endangered Minds: Why Children Don't Think, states that the brain today's children bring to school is different from that which came to the school 30 years ago. Accordingly, the curriculum of today's schools needs drastic revision if it is to keep students "actively engaged with objects and events." The nature of the changes which need to be made are characterized by Leslie Hart as he compares the student and curriculum of the past to the student and curriculum needs of today. "The students of those days, in their hours and months out of school, were drenched in exposure to reality. They helped grow and process food, fed and birthed animals, helped maintain machines and build structures, made many necessities, wove and sewed clothing, assisted manufacturing and business, knew the community and its people intimately. Their input was varied and often oppressively "real." The school could well afford, on balance, to bring them into a once- or twice-removed, symbolic world (of curriculum in the school)."

"But today's students are starved for exposure to reality, yet the schools have failed to bring reality inside their walls to offset the loss." (Hart, pp.125-126) And the "once- or twice-removed, symbolic world" of school does not constitute an "enriched environment." Just as 80% of reading comprehension hinges on prior knowledge, learning from today's curriculum occurs only for those who bring meaning to the printed page, who bring meaning to the symbols being studied. Most of today's students do not bring prior experience of the real world with them to the school sufficient to allow them to profit from school. (Hart, p.125)

To return to our discussion of learning, Eric Kandel of Columbia University developed several principles of "learning" based on examining the simplest forms of learning in Aplysia. While it may seem an indefensibly large leap form this simple mollusk to learning in humans,

researchers studying how the human brain learns are reaching similar conclusions via differing paths. Kandel's four principles* are:

- the aspects of learning are not diffusely distributed in the brain but rather are often localized in the activity of specific nerve cells *"Notice that each of the seven intelligences is posited in a different part of the brain."*

- learning results from an alteration in the synaptic connections between cells. Learning and memory typically result from alteration in the strength of already existing contacts rather than necessarily entailing new synaptic connections *"Latin says it all: Educate = "to draw out" not "stuff in."*

- prolonged and profound changes in synaptic strength can come about through an alteration in the amount of chemical transmitters released at the terminals of neurons. *"Good Morning Ameeeriiiica! If there is no wake up call for the chemical and electrical soup of the mind, nothing happens. Dittos don't make dendrites! Old misconceptions in science don't just go away on their own, they must be re-recorded over. And, transfer of learning from long term to short term memory depends on the presence of epinephrine in the body (adrenaline)."*

- these simple processes of altering synaptic strengths can be combined to explain how progressively more complex mental processes take place. *"This is to say that the brain doesn't just keep "pilling on" new stuff as it learns; rather learning is the result of "reorganizing" information - an active process for which passive seatwork is dismally unfit. Thus, answering the questions at the back of the chapter cannot be expected to produce learning." (Gardner, p. 47)*

One last comment about experience and its role of developing intelligence is Frank Smith's assertion that learning is incidental, that the mind processes huge gulps of input per minute, only a small portion of which may directly relate to the conscious issue at hand. The remainder of the input is not lost but goes into the brain to be activated and consciously reflected on at a later time which registers its message unconsciously, i.e., "This is a cold, sterile room; I'm not welcome here." Such input reflects the power and range of the senses involved in observation. All 19 senses* process information on a continuous basis. While we may think that the "goal" or "objective" of our lesson is what students are attending to, the truth is that they are processing a wide range of raw data. (*Samples, Bob. Open Mind. Whole Mind.)

2) *The Brain as a Pattern-Seeking Device*

The most notable characteristic of the human brain is its phenomenal penchant for seeking for and detecting patterns. In his book, Human Brain and Human Learning, Hart stipulates that "no part of the human mind is naturally logical" (Hart, p. 57) in its learning

processes (as distinguished from the ways in which we may take action on our world based upon our learning).

This pattern-detecting aspect of the brain can be clearly seen in the brain's mastery of one of its biggest accomplishments: learning the mother language. Watch mothers just home from the hospital with their newborns (or even listen to them talk to their child in utero!). Mothers know how to teach language. They do not "dumb down" their language to the infant to single syllable communications. Instead, mothers discuss the everyday happenings and share their hopes and dreams for their little one – "When you grow up, you'll go to Harvard and become an astronaut. You'd like that very much, I think. Very, very exciting occupation." "Oops, in 30 minutes your father comes home from work; we'd better get dinner started. Let's see, mother's milk for you and hmmm ... oh, oh, I forgot to buy anything for the main course tonight." Etc.

Such a barrage of sounds coming at the child in real-life fashion, would at first seem a hopeless environment in which to master language - an environment giving input to the child which can accurately be described as **rich, random, even chaotic** . As educators we have been carefully and logically taught that such an environment would make the task of learning a language impossible. Consequently, we teach English as a second language logically and carefully, "This is a pen. What is this? This is a _____." Unfortunately, the human brain does not learn well from such logical, tidy, greatly restricted in-put because it is so antagonistic to the brain, robbing it of its natural source and kinds of "food for thought" thereby eclipsing its natural - and thus most powerful - way of operating.

Instead, the human brain demands large gulps of in-put which flow through all the senses, all of which activates the system to full alert. Then it begins its pattern-seeking process. The brain's ability to categorize down - multi-path and multi-modal - far outstrips the most sophisticated version of computer artificial intelligence to date. The simultaneousness of its processing makes patterns obvious when processing (however speedy) along one avenue at a time would produce no ah-ha's whatsoever.

The amazing flexibility of the brain in its pattern-seeking is apparent in its ability to recognize the pattern of the letter "a"; we recognize it amid an amazing range of fonts, sizes, shapes, positions. This speed and flexibility can occur because the brain naturally works on a *probabilistic* basis. The brain does not add up, for example, all the parts of a dog until all parts are perceived and accounted for: four legs, a tail, fur, barks, etc. Rather the mind "jumps to the conclusion" that the pattern "dog" applies when only one or a few characteristics have been noted. While this jumping to conclusions sometimes gets us into trouble it is crucial to rapid completion of myriad actions minute by minute. The rapid reader, for example, does not see every letter before deciding what the word is. Context clues, the mere outline of the word, etc., are used, in probabilistic fashion, to jump to the rapid conclusion that it was an elephant that came crashing through the brush.

In the example of our infant learning its mother tongue, language pours around the child for hours and hours a day. The more in-put, the more rapidly the child learns. The first patterns perceived are those that are most meaningful - the child's name and then the name of mom and dad. Patterns are at first quite gross, i.e. "Dadda" means any man in trousers. As the snickers erupt, the child's mind is alerted to a problem with the pattern and over time, with continued rich in-put, the patterns become more and more refined until, finally, the educated adult ends up with a vocabulary of 10,000 plus words with subtle shades of meaning and used with considerable precision.

The entire structure of language is based on pattern. Plurals mostly end in "s" except for mouses, mooses, fishes, etc. Past tense ends with "ed" except when it doesn't. Gerunds, words that end in "ing" are a real thrill for most children; when the "ing verb" pattern is first grasped by children, everything is jumping, leaping, hitting, running, etc., for several days until another "pattern" of language is discovered.

Some of you may be saying, "But many of us have a brain that thinks through things logically and performs various tasks in a step by step manner." True, but notice that you are talking about behavior based upon what has already been learned, the using of what has been learned, not the manner in which you originally learned the concept/skill/piece of knowledge.

Much of our difficulty in teaching comes from our rather sloppy handling of in-put and out-put processing. This is quite understandable: we cannot observe the goings-on inside a child's mind, we can only observe behaviors- what a child does with what he/she knows. While understandable, it has caused us to make "logical" assumptions about learning which are false.

Out-put of what is known can and does often occur very logically for a great many people. But how we respond when we *use* information should not be confused with learning, processing in-put to arrive at meaning. Using or acting upon what one knows is discussed on later pages under the term "programs."

Input for learning is a pattern-seeking/recognition process as the brain strives to extract meaning from its surroundings based upon the thousands of bits of in-put pouring in to the brain each minute through the 19 senses. And, very importantly, what is one learner's pattern is another learner's hodgepodge. This is to say that we cannot predict what any one particular child will perceive as a pattern because so much depends upon prior knowledge and the existing neural networking of the brain used to process the input. Stripping down the in-put to a small amount of "stuff" so the "right" answer seems inescapable does not work.

Stripping a learning situation of this real-life richness robs the child's mind of the possibility of perceiving pattern and thus making sense of what is in front of him/her. Ironically, we do this consistently with Chapter 1 students. If they are slow, conventional wisdom has dictated that the task be broken into smaller and smaller pieces. We've now achieved pieces that are so small and so "easy" - only one item to focus on - that there is no longer any pattern to

perceive (it takes at least two "things to make a pattern," foreground and background, a circle for a head with a down curved line for an unhappy expression, etc.). Consequently, Chapter 1 students "don't get it" which confirms to us that they are "slow". However, most Chapter 1 students are very adept learners from real world in-put. They come to us having learned their mother tongue and a wide range of skills for coping with life.

Leslie A. Hart, author of Human Brain and Human Learning, defines pattern as: "An entity, such as an object, action, procedure situation, relationship or SYSTEM, which may be recognized by substantial consistency in the CLUES it presents to a brain, which is a pattern-detecting apparatus. The more powerful a brain, the more complex, finer, and subtle patterns it can detect. Except for certain SPECIES WISDOM patterns, each human must learn to recognize the patterns of all matters dealt with, storing the LEARNING in the brain. Pattern recognition tells *what is being dealt with*, permitting selection of the most appropriate PROGRAM in brain storage to deal with it. The brain tolerates much in variation in patterns (we recognize the letter *a* in many shapes, sizes, colors, etc.) because it operates on the basis of PROBABILITY, not on digital or logic principles. Recognition of PATTERNS accounts largely for what is called insight, and facilitates transfer of learning to new situations or needs, which may be called creativity."

In short, the mind is genetically designed to learn from the natural complexities of the natural world. To the extent that schools oversimplify, or make logical, or restrict the world's natural complexity is the extent to which schools inhibit the natural workings of the mind and restrict a student's ability to learn. Input from the real world can best be described as **rich, random, even chaotic** . Logical, sequential curricula delivered in logical ways are highly brain-antagonistic. Comments Hart, "Perhaps there is no idea about human learning harder to accept for people familiar with classroom schools than this: that the ideal of neat, orderly, closely planed, sequentially logical teaching will in practice, with young students, **guarantee severe learning failure for most** ." (p. 56)

3) *Programs: The Basic Unit of Behavior*

The behavior of our fellow human beings (and our own!) has long been one of life's greater mysteries. Behavior - its building blocks, why specific building blocks are chosen at any one moment in time - must be understood if we are to create effective schools.

According to Hart, the key to understanding behavior is "the realization that we act very largely by programs...a fixed sequence for accomplishing some intended objective. In other words, to carry on activities, one must constantly select a program from among those stored in the brain and implement it - put it to use." (Hart, pp. 82-83)

For many people, this is no doubt a surprisingly active view of learning - learning as measured by action, not by paper and pencil tests. Hart, in fact, defines learning as "the

acquisition of useful programs." Further, information that does not become part of a program is usually unretrievable. For example, recall you sophomore college days and the traditional Western Civilization/History class. Year long, 99.9% lecture, enormously fat textbook, etc. For the mid-term and final exams, the ubiquitous blue book. Weeks later when the blue book is graded and returned, you glanced inside. To your total shock, there were paragraphs of stuff you didn't even recognize - never heard of it before! A classic example of information which never became part of a program and, thus, is unretrievable, and often even unrecognizable. In other words, most information that we use is embedded in programs; the corollary is: information which is unusable is not retrievable.

The implications for the classroom of the 21st century are obvious - we need to do less better and more in depth, giving students time to "use" the information again and again in similar to unfamiliar settings until the information is recallable in useable form, i.e., a behavior.

The first step in the learning process is, as we have seen, detecting pattern. Once a situation has been so analyzed, and if action is required, the brain searches through its repertoire of stored programs, selecting the one that is most appropriate or calling forth two or more and using them in fresh combinations. According to Hart such capacity to "use old programs in fresh combinations" seems to underlie what we call creativity. (Hart, p. 88)

It should be noted that sub-skills and programs are not identical and have little in common. A program, while it can be enormously complex such as driving a car, is a sequence for accomplishing, some end - a goal, objective, or outcome - and end with meaning to the learner. Subskills such as the blend "ch" or the short "i" are not a sequence for accomplishing some end; they are isolated, fragmented pieces. In contrast, the program to be attained is the act of reading.

Hart defines a program as: "A sequence of steps or actions, intended to achieve some GOAL, which once built is stored in the brain and "run off" repeatedly whenever need to achieve the same goal is perceived by the person. A program may be short, for example giving a nod to indicate "yes," or long, as in playing a piece on the piano which requires thousands of steps, or raising a crop of wheat over many months. A long program usually involves a series of shorter subprograms, and many parallel variations that permit choice to meet conditions of use. Many such programs are needed, for instance to open different kinds of doors by pushing, pulling, turning, actuating, etc. Language requires many thousands of programs, to utter each word, type it, write it in longhand, print it, etc. Frequently used programs acquire an "automatic" quality: they can be used, once selected, without thinking, as when one puts on a shirt. Typically, a program is CONSCIOUSLY selected, then run off at a subconscious level. ...In general, humans operate by selecting and implementing programs one after another throughout waking hours."

The basic cycle in using programs is:

1) **Evaluate** the situation or need (detect and identify the pattern or patterns).
2) **Select** the most appropriate program from those stored.

3) **Implement** the program.

Successful implementation of programs are their own reward, accompanied by feelings of accomplishment and satisfaction. Aborting a program that doesn't work is unsettling and disturbing to our sense of confidence in self.

One last point: one's stock of patterns and programs "reflects experience much more than something called intelligence." (Hart, p.93)

4) *The Triune Brain - Gatekeeper to Higher Thinking Abilities*

The human brain is staggeringly complex in its structures, chemistry, and electrical signals, and functions. To view it in three basic "chunks" is admittedly a vast oversimplification, yet a useful one. As first theorized by Dr. Paul McLean, Maryland Department of Mental Health, the brain, evolving over millions of years, can be thought of as three brains of different ages. The first brain, over 200 million years old, can be referred to as the reptilian brain. The existence of our species attests to the success of this brain. Always on the alert for life-threatening events, it is the part of the brain we "downshift" to when responding to perceived life-threatening conditions. This downshifting has the effect of shutting off input from the much more slowly processing cerebral cortex and the limbic system. The brain stem has no language beyond a yell/scream or expletives. And while this brain sees and responds to visual input, it typically does not store such visual input. Storing things in memory takes time, coming up with a verbal defense takes time, a luxury which the human organism under life-threatening attack cannot afford. Action is needed NOW.

Recall, for example, a near accident. Almost before you are consciously aware of the circumstances, even before you have time to register fear, you find yourself giving the steering wheel a hard yank to the left. Your "old" brain perceived the threat from the car moving into the right front door of your car and it reacted instantly to preserve your life. Or in another instance, you cognitively register the problem, a car going out of control ahead of you and heading toward your lane, fear explodes through your body, and then suddenly you blank out. Seconds later you "come to" to find yourself safely parked at the side of the freeway but have no visual memory of how you missed the car in your lane or got to the side of the freeway and came to a stop. These are every day examples of the extreme downshifting of the brain to the brain stem when threat is extreme and life-threatening.

When this ancient brain goes to school, it does not shut off. It remains on the alert for any and all threat - real or perceived. And when triggered off, downshifting occurs, shutting down the cerebrum and thus eliminating the possibility of learning multiplication tables, Shakespeare sonnets, or observing for science. The threat from the classroom bully, fear of parents' physical punishments or a low grade, all create downshifting out of the cerebrum, the home of academic learning.

The second brain, the old mammalian brain or limbic system, is more than 60 million years old. Home of the emotions we associate with being human - love, hate, jealousy, frustration, anger, fear - this part of the brain has visual memory but language is still primarily limited to expletives.

In the classroom, put-downs from classmates or teacher, and even the threat of "not belonging" to one's group is sufficient to create downshifting, is registered as a threat. While not serious enough to trigger downshifting into the brain stem for swift action/reaction, such stimuli are more than sufficient to trigger downshifting out of the cerebrum into the turbulent soup of emotions. Again, long division, writing an essay, the checks and balances of our government cannot be processed. Academic learning goes on hold.

The third brain, the new mammalian brain or cerebrum, has been with us for only a few million years. In evolutionary terms, a very new item indeed. This is the home for academic learning. This is the part of our brain which handles language, symbols, and images for learning Shakespeare, exploring the complexities of science, studying ancient history, or crystal-balling the future.

Consistent with evolutionary processes in which old structures are not cast off but rather adapted to new purposes, the human brain did not discard its early structures which carried out their important functions so successfully. The result then is not a smoothly functioning, fully integrated operation of these three "brains" but rather constantly shifting interaction among them. This shifting interaction helps explain radical and swift changes in students' (and teachers'!) behaviors. The most startling examples of these shifts can be seen in the two year old who at one instant is calmly and contentedly engaged in examining his food, serving himself, and munching one morsel at a time. Then, within a blink of an eye, he erupts into a full blown tantrum, only to be diverted seconds later into calm and contented attention to a new item of food delivered to his plate. The copious tears stop mid way down the cheek, drying instantly, the contours of the face recompose instantly. Such mercurially swings are the result of down- and upshifting from brain to brain. Different structure, different function; different function, different behavior.

The implications of the triune brain for the classroom are simple and startling. If there is anything in the classroom environment that represents threat - real or perceived - learning cannot take place because the part of the brain that can process learning has been turned off, so to speak. Make no mistake, the operation of the triune brain serves as the gateway to learning. This must be the first aspect addressed in the classroom. All other efforts at curriculum redesign or improvement of instructional techniques are wasted if students cannot remain upshifted into their cerebrums.

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LEARNING HOW TO LEARN

The Mediated Learning Experience (MLE) can help you overcome learning blocks – and awaken you to the process of learning itself

An Interview with Kathy Greenberg, by Duane H. Fickeisen

Learning, which begins before birth, becomes ever more important as the pace of change accelerates around us. Whether it involves learning how to better influence the future, or developing the needed skills for earning a livelihood, learning can be empowering, fun, and energizing – or it can be frustrating and discouraging – depending on your skills in learning. But how can we learn how to learn?

Kathy Greenberg, Associate Professor of Special Education at the University of Tennesee, Knoxville, works to help teachers mediate their students' learning experiences so that students gain practical skills in problem-solving. Her COGNET program, based on Reuven Feuerstein's Mediated Learning Experience (MLE), makes the power of effective mediation widely accessible.

Developed by Feuerstein over 30 years ago, the theory of MLE complements the earlier work by the Russian researcher Lev Vygotsky, who developed mediation as a way to assist learners in developing cognitive processes. Feuerstein extends this work to a broad cultural setting and considers what can be done to help people overcome common impediments to learning.

The theory is comprehensive and complex, and consequently it has proven difficult to understand and apply for those outside the fields of psychology and special education. Kathy's success with the application of mediation led her to seek ways to make the theory and skills in its use more widely available to parents and all professionals who provide services to learners. The 30-hour COGNET training program provides an introduction to the theory and tools to use in mediation. Participants learn to diagnose hindrances to learning, to help their students understand basic factors which affect learning, and to use learning tools efficiently.

Thanks to the US Department of Education Follow Through Program grant #030913, the program – now in its third year – is available at a reduced cost, and training workshops for parents and professional educators have been conducted in several states. An interactive video training program based on Greenberg and Feuerstein's work, directed by Quicksilver Productions and New Horizons for Learning, will be available in Spring 1991. For more information contact Dr. Kathy Greenberg at COGNET, 321 Claxton Addition, The University of Tennessee, Knoxville, TN 37996-3400, 615/974-2321.

Duane: *How did you get involved with the Mediated Learning Experience?*

Kathy: I was teaching young adolescents with learning disabilities in 1975, and I was looking for a way to help them learn to think. I felt I had some handles on how to help them learn to read and do math and other things. But they just weren't *thinking*.

Then I heard that George Peabody College for Teachers in Nashville wanted teachers to volunteer to receive training in a program on "learning how to learn," and then to implement that program for evaluation. The program was Feuerstein's "Instrumental Enrichment," a world-renowned program which applies the comprehensive theory on which COGNET is based.

During the very extensive, 40-hour training, I began to see ways to pull together some things that I had always known at an intuitive level. And when I *used* the program, the kids in my class – mostly adolescent boys – began to behave better and to pay better attention almost immediately. They began to speak up more, and there was an inaudible sigh of relief – "You mean I'm not *lucky* if I get it and *unlucky* if I don't? You mean I can be *responsible* for my learning?"

I still get goose bumps when I think back to that class and how they began to change. They began to see that there is a *system* to the way you look at the world and how you go about learning and solving your problems.

When I entered higher education, I began to work on ways to train others. It is difficult for people to get into this theory at first unless they come from the field of developmental psychology. So for eight years I worked on ways to share this theory quickly with more people. With the primer that we now use in COGNET, people are

able to understand it and use it in a relatively short time.

Duane: *I've found the theory somewhat inaccessible, too! What is the Mediated Learning Experience?*

Kathy: It is easy to get too wide a focus, so it's better to pinpoint certain principles and stick to them to explain the theory overall.

According to Reuven Feuerstein [of the Hadassah-WIZO-Canada Research Institute in Jerusalem, Israel], who developed the theory of Mediated Learning Experience (MLE), mediated learning occurs whenever an individual deliberately places him or herself *between* external or internal stimuli and the learner, and *transmits* the stimuli in a particular way to that learner.

What distinguishes MLE are three particular characteristics which must occur within the interaction – intent, meaning, and transcendence.

Intent refers to the intent of the mediator, the caregiver, the teacher, or whomever is in charge of the interaction, to focus the attention of the learner on some particular thing. For example, if a young child picks up a ball, the mediator would help the child to look at some part of the toy or see some cause and effect – such as the way you can make a ball spin when you turn it a certain way. The mediator will focus the child's attention *there* rather than just following the child in whatever way the child's interest might fall. Of course, the mediator must pay attention to the child's interests and change her own behavior accordingly. The point is that the mediator makes sure that the learner goes *beyond* the immediate needs of the situation, in some manner which would not occur without the mediator's focusing behavior.

The second characteristic is imparting *meaning*. The mediator helps the learner interpret the stimuli so that the experience has a special meaning that it might not have otherwise. To continue with this example of the ball, meaning can be brought out in a specific way – related to certain stimuli, such as watching it bounce or spin – so that *significance* attaches to this as a very special and unique toy that you can do things with that you can't do with other toys. Imparting meaning provides a *power*, as Feuerstein refers to it, that keeps a person involved in the interaction so that he or she is much more interested in participating.

The third characteristic is *transcendence*, which has to do with making connections between the specific and the general. Transcendence is the heart of mediation. It involves moving beyond the immediate needs of whatever is going on in the current situation, or task, or what you're thinking about to develop the potential to apply it elsewhere in slightly different ways.

It can be very difficult for people to learn a skill and be able to apply it in different situations. For example, people with learning problems who are learning to add and subtract may find it difficult to add and subtract in another classroom with a different teacher. Transcendence helps the person rise above the immediate stimuli and get a different perspective.

There is some culture transmitted from television, but it's not mediated – people are just exposed to it.

It is important to note that mediation is often done very implicitly. For parents in primitive cultures who don't read, for example, no one has said "This is how you help the kids learn how to learn." Instead, what's been said is "This is what parents are expected to do in our culture." You need to share certain things with your children or else you are not going to be respected by other members of your society.

Today we are finding a breakdown in cultural transmission, particularly in our country. Maybe the parents and children are there in the home, but they are watching television. And yes, there is some culture transmitted from television, but it's not *mediated* to people. They are just *exposed* to it.

Duane: *The theory of MLE seems intuitively correct to me. Yet in your surveys of classrooms at various levels, you found mediation was very often not being used effectively to help children learn how to learn.*

Kathy: That's right. And I believe part of the reason is that there has been so much emphasis on basic skills that we are teaching *isolated* skills. There is very little opportunity – and in fact, sometimes teachers are told that it's *wrong* – to make broader connections. But if you isolate skills, you must help students place them in the context of the real world, or they will have many difficulties using them when they are needed in real life situations – as well as difficulties in learning them in the first place. If you don't help the learner find personal relevance in the skills, then you've created a worse problem.

For example, most adults today went through language arts. We had all those stupid sentences that had no meaning to us, and we were to go through and correct the punctuation and grammar. Year after year after year we did these things, and we know today that this approach is not very effective. We need to create *personally relevant* exercises – things that people edit because

10 Building Blocks Of Thinking

The Building Blocks are prerequisite skills upon which thought processes are based. In the Mediated Learning Experience, the mediator evaluates the learner's level of competency and use of these Building Blocks and seeks to help develop those that are underused.

Approach to Task • Beginning, being involved with, and completing an event, including gathering information, thinking about the situation, and expressing thoughts or actions related to the event.

Precision and Accuracy • Awareness of the need to automatically be exact and correct in understanding and using words and ideas.

Space and Time Concepts • Understanding basic ideas about how things relate in size, shape, and distance to one another (space); and the ability to understand measurement of the period between two or more events and/or changes that occur due to these periods (time).

Thought Integration • Pulling together and using at the same time multiple sources of information which are a part of a given event.

Selective Attention • Choosing relevant pieces of information when considering thoughts or events.

Making Comparisons • Awareness of the need to automatically examine the relationship between events and ideas, especially in determining what is the same and what is different.

Connecting Events • Awareness of the need to automatically associate one activity with another and use this association in a meaningful manner.

Working Memory • Enlarging the thinking space in order to enter bits of information from the mental act, retrieve information stored in the brain, and make connections among the information gathered.

Getting the Main Idea • Awareness of the need to automatically find a fundamental element that related pieces of information have in common.

Problem Identification • Awareness of the need to automatically experience and define within a given situation what is causing a feeling of imbalance.

they *want* to get them in a form other people can understand, or because they want to share their own information – and not just some silly sentences in a text book.

Duane: *The COGNET program also includes ongoing evaluation of the student's learning efficiency. What's the structure for this ongoing evaluation?*

Kathy: Feuerstein describes more than 28 "Building Blocks of Thinking." But in the COGNET program, we have condensed those down to ten. We also work with eight "Tools of Independent Learning." [See sidebars.] These tools allow you to see what it is that's really causing the child problems, so you don't just say, "This child can't learn," or "This child has not learned the subject matter." Instead you are able to say, "This child did not gather all the information before starting," or "This child had no plan for learning."

If you are already a pretty good learner, sometimes there are just one or two Building Blocks getting in your way, particularly when you are having difficulty with some task. But when you get concerned or anxious or dissatisfied or unmotivated because you are having *trouble*, then you begin to use the Building Blocks less efficiently – and that causes you even more difficulty. The emotional overlay is, in large part, responsible for the breakdown in learning.

So by focusing on just a few variables, you can learn to *understand* that that's what's getting in the way. You can turn things around and become a much more independent learner.

Duane: *And that feels good and motivates further learning.*

Kathy: We know from neurological research that emotions are very much a factor in learning; they profoundly affect each other. What I like about this theory is that it doesn't just focus on the cognitive side, but looks at emotions too.

It's important to note that while this theory is used as an intervention with special needs populations, it is also a way of looking at *all* kinds of learning situations and seeing how human beings progress and develop, not just as individuals, but as whole societies and in the world.

Duane: *What does the theory have to say about assessment of intelligence and ability?*

Kathy: Feuerstein and Vygotsky agree that *intelligence* isn't the issue – *cognitive development* is.

The prevailing theory of intelligence is based on the underlying assumption that the quality of cognitive functioning determines the quality of learning experiences – in simple terms, your ability to develop understanding from your experiences determines the quality of your experiences. However, Vygotsky makes a strong case that it's the other way around – the development of cognitive function *lags behind* learning experience.

I agree with Feuerstein that both nature and nurture determine cognitive functioning – but

that the prevailing theory overemphasizes nature. Learning experiences, particularly MLE, are the major determiner of cognitive functioning.

This is another paradigm shift with profound implications for intelligence testing. When subjects are taught *how* to approach problem-solving tasks, and then retested on those tasks, it is possible to measure their *propensity for learning*. We've found that students' scores before they are taught how to solve problems are not very helpful in predicting their scores after being taught these skills. In other words, *the ability to learn how to solve problems is not necessarily related to how much the student already knows*. We believe these data support the assumption that mediated learning experiences are the major determiner of cognitive functioning, rather than the other way around.

Duane: *That could have a dramatic effect on assessment.*

Kathy: It already has. In California, Black students can no longer be placed in special education programs based on IQ scores. A very thoughtful look at this theory helped that happen.

Duane: *How do teachers change their style of teaching when they become involved in this program?*

Kathy: Teachers have changed rather dramatically – for example, in the way they question children, and in the types of answers they are comfortable in receiving from them. It doesn't have to be *the right answer* every time. Instead, they encourage children to give *partially* correct answers and think further, rather than co-opting what a child has said, calling on another child, or telling the child what to think. They're turning the classroom into a laboratory for learning instead of a stage for producing right answers.

Duane: *That sounds powerful.*

Kathy: It's very exciting to see that happen. We also find that these teachers are very much raising their expectations of children, and they are expecting more from their slower learners as well. And not giving up on them so easily.

Duane: *What's ahead for the program?*

Kathy: We plan to focus on determining the most effective approaches for implementing mediated learning in the classroom and the home. For example, we are investigating what happens when computer software is used to help students apply the Building Blocks and Tools.

But exciting things are happening regarding the theory of MLE as well. In the long run, the Russian psychologist, Vygotsky, is expected by some to have as much or more effect as Piaget has had on psychology. Most of his work is now in the process of being translated into English. For the next five years, there will be a volume out every year about his work, some of which is very closely related to this theory. As people begin to look at Vygotsky, they are going to see a need for Feuerstein, because Feuerstein provides great insight into specific aspects of mediated learning which can be used to improve cognitive functioning.

What everyone is coming to is that *social interaction* is the key to cognitive development and to learning. We've got to learn to focus on that, to see how that works, and to tap into what it is that's happening in the classroom, or one-on-one in other settings. And when we understand that better, then we can help everyone to go further and to reach his or her own potential. ▲

8 Tools Of Independent Learning

These tools are needed if a person is going to be an active generator of information and not just a passive recipient. They are described by Feuerstein as "parameters of mediated learning" and are included in the COGNET program under the following labels:

Inner Meaning • Being aware of and developing a significance inside yourself that provides intrinsic motivation for learning and remembering.

Self Regulation • Controlling your approach to learning by using metacognition (thinking about how you are thinking) to determine factors like readiness and speed.

Feeling of Competence • Knowing you have the ability to do a particular thing. Lack of this tool often results in laziness and other avoidance behaviors; presence of it results in feeling confident and motivated to learn.

Goal Directed Behavior • Taking initiative in setting, seeking, and reaching objectives on a consistent basis.

Self Development • Being aware of your uniqueness as an individual and working toward becoming all you can be.

Sharing Behavior • Communicating thoughts to yourself and others in a manner that makes the implicit explicit.

Feeling of Challenge • Being aware of the effects emotions have on novel, complex, and consequently difficult tasks; knowing how to deal with challenge.

Awareness of Self Change • Knowing that you change throughout life and learning to expect, nurture, and benefit from it.

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VYGOTSKY

by Cristina Guerra, M.A. University of Puerto Rico Río Piedras
and Ricardo Schütz, MATESL - S&K,ESL

A word devoid of thought is a dead thing, and a thought unembodied in words remains a shadow.

Thought undergoes many changes as it turns into speech. It does not merely find expression in speech; it finds its reality and form.

Thought is not merely expressed in words; it comes into existence through them.

... the speech structures mastered by the child become the basic structures of his thinking.

The structure of the language one habitually uses influences the way he perceives his environment ...

Lev Semenovich Vygotsky (1896-1934) studied at the University of Moscow to become a teacher of literature. His first research as a young scholar focused on artistic creation. It was only from 1924 on that his career changed dramatically and he started working in the areas of developmental psychology, education and psychopathology. He pursued these interests at a highly productive pace until he died of tuberculosis in 1934 at a very young age (Murray Thomas, 1993). Due to different factors, including those related to the particular political relationship between the United States and the Soviet Union, Vygotsky's work remained unknown in the Americas for decades. When the Cold War ended, the incredible wealth of Vygotsky's work began to be revealed. Nowadays, it is difficult to exclude Vygotsky from any serious discussion of learning processes.

The origins of thought and language according to Vygotsky

Like in animals, thought and speech have different roots in humankind, thought being nonverbal and language being nonintellectual in an early stage. But their development lines are not parallel - they cross again and again. At a certain moment around the age of two, the curves of development of thought and speech, until then separate, meet and join to initiate a new form of behavior. That is when thought becomes verbal and speech becomes rational. A child first seems to use language for superficial social interaction, but at some point this language goes underground to become the structure of the child's thinking.

Word meaning and concept formation

> *... a problem must arise that cannot be solved otherwise than through the formation of new concepts. (Vygotsky, 1962:55)*

Once the child realizes that everything has a name, each new object presents the child with a problem situation, and he solves the problem by naming the object. When he lacks the word for the

new object, he demands it from adults. The early word-meanings thus acquired will be the embryos of concept formation.

Thought and language, and intellectual development

According to Vygotsky, all fundamental cognitive activities take shape in a matrix of social history and form the products of sociohistorical development (Luria, I 976). That is, cognitive skills and patterns of thinking are not primarily determined by innate factors, but are the products of the activities practiced in the social institutions of the culture in which the individual grows up. Consequently, the history of the society in which a child is reared and the child's personal history are crucial determinants of the way in which that individual will think. In this process of cognitive development, language is a crucial tool for determining how the child will learn how to think because advanced modes of thought are transmitted to the child by means of words (Murray Thomas, 1993).

To Vygotsky, a clear understanding of the interrelations between thought and language is necessary for the understanding of intellectual development. Language is not merely an expression of the knowledge the child has acquired. There is a fundamental correspondence between thought and speech in terms of one providing resource to the other; language becoming essential in forming thought and determining personality features.

Zone of proximal development

One essential tenet in Vygotsky's theory is the notion of the existence of what he called the "zone of proximal development". Zone of proximal development is the difference between the child's capacity to solve problems on his own, and his capacity to solve them with assistance. In other words, the **actual developmental level** refers to all the functions and activities that a child can perform on his own, independently without the help of anyone else. On the other hand, **the zone of proximal development** includes all the functions and activities that a child or a learner can perform only with the assistance of someone else. The person who intervenes in this scaffolding process could be an adult (parent, teacher, caretaker, language instructor) or another peer who has already mastered that particular function.

An interesting analogy comes to my mind when I think of zone of proximal development. In mechanics, when you adjust the timing of an engine, you set it slightly ahead of the highest compression moment in order to maximize power and performance.

Vygotsky's zone of proximal development has many implications for those in the educational milieu. One of them is the idea that human learning presupposes a specific social nature and is part of a process by which children grow into the intellectual life of those around them (Vygotsky, 1978). According to Vygotsky (1978), an essential feature of learning is that it awakens a variety of internal developmental processes that are able to operate only when the child is interacting with people in his environment and in cooperation with his peers.

Vygotsky's influence on Krashen's second language acquisition theory

Vygotsky's concept of zone of *proximal development* resembles very closely *Krashen's input hypothesis*. According to this hypothesis, language acquisition takes place when the learner receives second language 'input' that is one step beyond his/her current stage of linguistic

competence. For example, if a learner is at a stage 'i', then maximum acquisition takes place when he/she is exposed to **'Comprehensible Input'** that belongs to level **'i + 1'**.

Krashen's *acquisition-learning hypothesis* also seems to have been directly influenced by Vygotsky. The concept of acquisition as defined by Krashen in his hypothesis, is a perfect application of Vygotsky's view of cognitive development as taking place in the matrix of the person's social history.

Vygotsky's work helps to explain cognitive development and also serves as a foundation for the modern trends in applied linguistics towards less structured and more natural, communicative and experiential approaches in second language learning.

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Directions For Small Group Readings

Group A: "Principles of Brain-Based Learning"
Group B: "Notes from Recent Brain Research"
Group C: "Learning How To Learn"
Group D: "Vygotsky"

- Distribute articles to each participant.

- Each participant should read his group's assigned article and complete the attached worksheet. Allow 20 minutes for this reading/worksheet section.

- Each participant is to share with his/her small group some of their key points from the article and what they would see in the classroom. Allow 40 minutes for this discussion.

- Each small group will then decide how they will share with the large group.

Suggested process

a. Select a group leader to keep the group on task.
b. Have all members of the group read the article and note the key points shared by the author and what those key points might look like in the classroom (leader/group determine time limit for this piece).
c. Have group members share their key points.
d. Group should decide which points and classroom examples to share with the large group and HOW the information will be shared. Will you use charts? Will all members of the group be in the presentation? The suggested time limit for this presentation is 7 minutes.

- Large group discussion - the workshop presenter will lead the large group in discussing any critical points participants want to make regarding the content of the articles.

(Handout)

Homework – Small Group Reading Reflections

Key Points from the article	This is what the key points would look like in the classroom

Homework Assignment

- You will be conducting classroom observations at your school.
- Using the Classroom Observation Sheet, brainstorm some of the things you will be looking for as you visit. For example, would you like to see if ALL students are receiving challenging work? If so, jot that down in the left column. Make a list of things you'd like to look for.
- On the right side of the observation sheet, list the things that you actually see when you visit the classrooms. Note the grade level and/or teacher you observed. Did you see evidence that all students were receiving challenging work?
- When you complete your observations, note on your reflection sheet what you discovered. Were you surprised? Pleased? Disappointed? Is there a relationship between what you learned in the video to what you saw in the classrooms?
- How might you use the video series to affect necessary changes at your school?

(Handout)

Classroom Observation Sheet

What I Will Be Looking For	What I Observed In The Classrooms
• Classroom practices that support one of the five characteristics of resilient students (i.e., author's work, shows perseverance, ability to read). • As I visit the special education class, the regular education classes, and the gifted and talented class, do I see that all students are receiving challenging work? • Is the teacher mediating learning? Are there opportunities for students to transfer learning to another situation?	

(Handout)

Debriefing My Classroom Observations

Positives I observed	Things I would like to see done differently

Activity for Developing a Powerful Lesson

- All participants are asked to develop a lesson plan. Participants may do one independently or with a partner.
- Participants should use the attached *Rubric for Powerful Units of Instruction* to rate the quality of their lesson.
- Participants may select any content area. Suggest to participants that they select a simple concept to plan for so focus can be given to the attributes of a powerful lesson.
- Debrief this activity by asking reflective questions such as:

  a. What did you find easy/challenging as you wrote the lesson to meet the rubric attributes?

  b. How would you rate your lesson ("4" is high, while "1" is low)?

  c. How might the teachers in your school feel if they were expected to write lessons with the attributes on the rubric?

  d. What kind of supports might some of your teachers need in order to write powerful lesson plans?

  e. What are some of the implications for principals if teachers were expected to write powerful lesson plans?

Rubric for Powerful Units of Instruction

Attributes	1	2	3	4
Mediated Learning Experiences	Identifies intent, but does not allow students time to make meaning of the information presented in the lesson.	Lessons address intentionality, and meaning-making, but do not show how the learning will be applied to a student's real world.	Has attributes of intentionality, meaning, and transcendence, but does not adequately address the skills associated with input, elaboration, and output.	Includes attributes of intentionality, meaning, and transcendence. Addresses skills associated with the learning stages of input, elaboration, and output.
Zone Of Proximal Development	Is not comprehensible to the learner and is not scaffolded on students' prior learning.	Has elements of comprehensibility and engagement, but does not include problem-solving and is not scaffolded on the students' prior learning.	Lessons engage students but fail to address issues of depth; or have depth, but do not include a diverse process of engaging students in the work.	Lesson encompasses each element of the dimensions of depth and engagement. Is authentic, includes problem-solving, novel ways of employment and scaffolding.
Multiple Intelligences	Lessons are delivered with an effort to engage only one of the traditional intelligences – verbal or logical-mathematical.	Units only feature the verbal or logical-mathematical intelligences that are associated with traditional practices.	Multiple intelligences are included in the unit, but are treated as separate lessons that stress intelligence in isolation situations rather than an integrated whole.	Lessons in units provide opportunities for students to utilize a variety of intelligences as they make sense of information.
Resiliency Factors	Students are not provided with an opportunity to engage in high status work and their ability to read, write, and speak well is limited.	Students are engaged in work that is not challenging and they are not expected to be able to produce quality.	Students are afforded opportunities to author a work, but the work is not as challenging as it could be.	Lessons improve a student's ability to read and create sense of accomplishment. The students also learn to overcome challenges by delaying gratification.
Differentiated Instruction	No accommodations are made for the diverse population of students. Work is distributed according to the ability levels of students.	Lessons are well-paced, but the work produced is scaled to expectations according to innate abilities.	Lessons utilize the leverage points of differentiated instruction, but the work distributed is not challenging for all students.	Lessons utilize the leverage of pace, depth, novelty, and complexity to enhance the ability of all students in the classroom to engage in high-status curriculum.
Project/Performance-Based Unit Of Instruction	Unit is an episodic experience that is not linked to authentic exhibitions of knowledge.	The unit is divided into lessons that are individually assessed, but lacks a holistic assessment of the entire unit.	The unit has a culminating project that utilizes only traditional methods of assessment. The assessment only informs the teacher about a segment of the unit.	The culmination project effectively informs the teacher about a student's understanding of the intended purposes of the unit of instruction.

Workshop 1

Leader as Learner

Evaluation Form

Workshop 1: Leader as Learner

Evaluation Form

This session was . . .

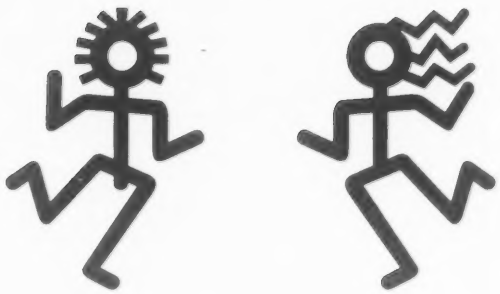
I learned . . .

I will use . . .

I will know that what was used was successful when . . .

Workshop 2

Leader as Sensemaker



Outline of Workshop 2: Leader as Sensemaker

Main Ideas of Workshop 2:

- Leaders need to make sense of their environment and help others to understand the environment as well.
- There are tools a leader can use to help simplify and construct meaning about the change effort for their school community.

Desired Outcomes for Workshop 2:

- Participants will use the Seven Sensemaking Tools to understand their school community.
- Participants will reflect upon their school community's readiness for change.

Estimated Time:

- The amount of time for the session will be dependent upon each individual facilitator. The readings and small group activities a facilitator selects will vary.

Materials List:

- Completed homework form – Classroom Observation Worksheet
- Video Part 2: *Leader as Sensemaker*
- *Leader as Sensemaker* video study sheet
- "Sensemaking in Organizations" article for each participant
- Sensemaking reflective questions sheet for each participant
- "Tipping Points" article for each participant
- Tipping points reflective questions and inventory worksheets for each participant

Directions for the Facilitator

Opening Workshop 2:

- Welcome everyone back for Workshop 2 - *Leader as Sensemaker*. Have participants review their Classroom Observation Sheets. Let them know that we will be sharing some information. Allow a few minutes for individuals to review.

- Review the agenda and ground rules with participants. Ask if there are any other ground rules the group would like to consider.

Inside-Outside Circle

- To provide a transition between Workshop 1 and Workshop 2, the group will participate in an activity called "Inside-Outside Circle." The purpose of the activity is to review the homework assignment.

- Directions for activity: Have participants "count off" *a*'s and *b*'s. Have all the *a*'s form an inside circle facing out and the *b*'s form an outside circle facing in. Each of the *a*'s should be facing one of the *b*'s. These pairs will discuss questions posed by the facilitator. The facilitator will time the responses. Each participant will have one minute to answer the question. While one person is speaking, the other person is to listen and listen only. No talking.

- Question 1 for *a*'s: Tell your partner the most exciting thing you observed while on your classroom visitation. After one minute, ask the same question and this time the *b*'s will answer. After one minute, ask all the *b*'s to take two steps to their left. They should now be facing a new partner.

- Question 2 for *b*'s: Tell your partner one mediated learning practice you saw occurring in the classroom you visited. After one minute, ask the same question for the *a*'s to answer. After one minute, ask the *a*'s to take five steps to their left. They should now be facing a new partner.

- Question 3 for *a*'s: Share one strategy that you as a leader would utilize to facilitate more MLE or brain research practices at your school. After one minute, ask the same question for the *b*'s to answer.

- Call on 2 or 3 people to share their greatest learning from the classroom observations. Ask participants to limit their sharing to 30 seconds.

Debriefing Inside-Outside Circle

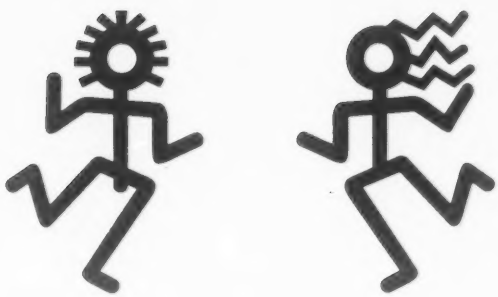
- Ask participants how they would be able to use this strategy at their schools and in what settings. Why would this be a good strategy to use? Sample responses are that teachers would be able to use this strategy to have students review and practice concepts which have been taught.

Introducing Sensemaking Video

- Let participants know that Dr. Matsui will be introducing concepts known as "Tipping Points" and "Sensemaking." Distribute the video study sheet. Sensemaking and Tipping Points are on separate sheets for note taking. See suggested follow-up activities in this section.

Workshop 2

Leader as Sensemaker



Video Study Sheets

Video Part Two: Leader as Sensemaker

Video Study Sheet 1
Seven Sensemaking Tools

Seven Sensemaking Tools – One can only make sense of what one has done, not what one has not done.

- Talk the Walk –

- Every Manager an Author –

- Every Manager a Historian –

- Meetings Make Sense –

- Stamping in Verbs –

- Shared Experiences –

- Expectations –

Video Part Two: Leader as Sensemaker

Video Study Sheet 2
Tipping Points

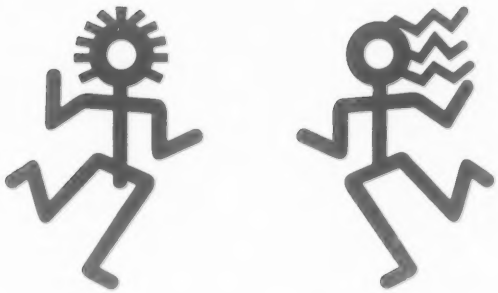
- Connectors are . . .

- Mavens are . . .

- Salesmen are . . .

Workshop 2

Leader as Learner



Suggested Activities for Participants

Activity to Follow Video Part Two

Sensemaking Tool Activity:

- Form groups of 7 participants per group. Assign each person a number.
  1. Talk the Walk
  2. Every Manager an Author
  3. Every Manager a Historian
  4. Meetings Make Sense
  5. Stamps in Verbs
  6. Encourage Shared Experience
  7. Expectations Are Real

- Ask each participant to read the article "Sensemaking in Organizations" in its entirety. When done, they are to go back to the section that they have been assigned to (by number). For their section, they are to highlight 2-3 items/statements that interest them. Allow 30 minutes for this piece.

- When time is up, give the following directions for the strategy, "The Final Word." In their group, begin with person number 1. That person will share ONE of his or her items/statements from the article. The group members will then comment – in round robin fashion on that person's statement. Round robin is when group members speak in turns, moving around the group in one direction. After the group members comment about the item, the initial person who named the item **then** shares his or her thinking about the item and *gets the final word*. No comments are to be made.

- Repeat the pattern around the group.

- If the group is small, then assign several tools to each participant instead of one tool per participant.

Sensemaking in Organizations

This paper represents a synthesis of a book by Karl Weick bearing the same title. Synthesis done by Dr. Bruce Matsui.

Lessons and Practices of Sensemaking In Organizations

- **Talk the Walk**

In the multiple realities of the real world, confining one's administrative goal to "walking the talk" may lead to actions and decisions that are confining. Walking the talk may in fact, back leaders into a corner that contradicts the common sense realities of one's workplace.

"Walking" within your environment is an important means of discovering what needs to be talked about. Leaders shape what they think by looking attentively as they walk. The talk about walks is essential to a leader's ability to make sense of his or her organization. Said differently, those best able to walk the talk are usually the ones who take the time to talk their walks. This is the case because being able to talk the walk requires that leaders pay attention to input from their senses.

If leaders are forced to walk a talk, it may heighten accountability, but forced walks are also likely to heighten caution and inertia, thereby, reducing risk taking and innovation. People who are forced to walk a "talk" often forgo explorations, and simply walk on behalf of words that they may not fully believe, or understand. When leaders are told to walk a "talk," an important vehicle for discovery, the walk, restricts the flow of data from one's senses. The forced walk serves a different purpose, it is pressed into service as a testimonial that a handful of earlier words are the "right" words. As Weick states (1979): *"What people in this case forgo, is the chance for the walking to uncover something for which the current words are inadequate and for which new words are needed. To "talk the walk" is to be opportunistic in the best sense of the word."*

- **Every Manager an Author** (Words that one uses are important)

For leaders, the choices of words matter significantly. Certain words and phrases provide better pictures for members of a workplace. Words and metaphors can be employed to facilitate

sensemaking. Choice of words conjure up images, and what is focused upon remains sharper in our minds.

For example, "intentional ill treatment" draws less attention and is less of a spur to action than is "battered child syndrome." Phrases such as "windfall profits tax" and "slaughterhouse" single out distinctive qualities of mundane action that then become memorable. Descriptive and rich vocabularies matter in a world of action where images of actions rather than the actions themselves are passed from person to person. Rich vocabularies give options for construing the meaning of action and are more likely to reveal the inherent opportunities in what might otherwise seem like senseless change.

- **Every Manager a Historian**

The quality of one's decision as a leader is determined *after* it has been made, *not before.* Having an understanding of what has taken place leads to better decisions. **Visions are made authentic when they are based on what has occurred rather than what will occur. Good visions become sharper through an analysis of actions taken, rather than future wishes.**

Since history tends to repeat itself, becoming a student of past actions and events help make leaders more efficient and effective in the future. Decisive actions without benefit of history result in cycles of 'seductions and abandonments' that are commonplace in educational reforms. Learning from trials and error increase a leader's confidence about decisions to be made for the future. As Weick states:

> ***"Whenever people are said to make a decision, what really happens is that they are working retrospectively. When one feels compelled to declare that a decision has been made, the gist of that feeling is that there is some outcome at hand that must have been occasioned by some earlier choice. Decision making consists of locating, articulating, and ratifying that earlier choice, bringing it forward to the present, and claiming it as the decision that has just been made. The decision actually has already been set in motion before people declare that it has been made…….What is crucial about this is that a decision is an act of interpretation rather than an act of choice." (1979)***

This suggests that decision-makers are only as good as their memory allows them to be. And memory, in turn, is no better than the detail encoded upon it. Good decisions arise from accurate readings of what has been going on, as well as what is going on. Having the historian's ability to chronicle actions taken will lead to better decisions for the future.

- **Meetings Make Sense** (especially when they serve to reduce ambiguity)

In most organizations, people do need to meet more often. Confusion, represents both threats and opportunities. At some point, a given proposal may mean different things to different people, and implementing a strategy may not create greater meaning. **What will help organizations is a setting where they can argue about data that has been pulled from a variety of media and one's own experiences.** In this way, members of the school community can construct meanings that lead to informed 'actions'. The time for such meetings are made possible through the elimination of meetings that do not *'make sense'*.

Leaders must take a close look at the nature of their meetings. Most meetings are about *walking the talk* instead of sharing the uncertainties than confront and confound ambiguity, more ambiguity results. We tend to deal with ambiguity with additional mandates, rather than trusting the ability of a local organization to reduce their ambiguities through dialogues and multiple interpretations of the "facts". **Most productive meetings tend to be messy, argumentative, and full of lively dialogue.** Such meetings should be viewed as sensemaking. Such meetings give the sites a chance to make sense of the complexity that confronts them, as well as the opportunity to create multiple strategies of confronting that same complexity.

- **Stamp in Verbs**

Mechanistic entities are things that people fix, and once fixed, they are supposed to stay fixed. Verbs that govern such solutions become permanently inscribed in policy and codes. The trouble is, not much in organizations stay permanently solved. **Closer to the reality of organizations is the idea that problems should be managed rather than solved.** Those who get immobilized and angry in organizations are those who see the world as a place filled with problems that can be solved once and for all. When something doesn't work, the plan is blamed; *not* the planning and actions associated with the plan. The problems of an organization may appear to be solved; however, if the **actions** that produced the problem are not altered, the problem will resurface.

This is why verbs are so important. It is not the organization and its structures, it is their actions within structures that count. Patterns in an organization define daily realities – what is really going on. **Verbs capture such patterns** and lay down foundations for sensemaking. Describing an environment as dishonest does not tell us as much as listening to the person lying and the manner and context in which the lie occurs. **Verbs point to actions available for a task.**

People who think with verbs are more likely to **accept life as ongoing events** into which they are thrown, and less likely to think of it as turf to be defended, levels of hierarchy to be ascended, or structures to be upended. They come to understand that sensemaking is ongoing and the sense it makes, transient. Verbs force us to do that. Nouns do not. **Verbs identify actions that can serve as the first step to changing patterns.**

- ***Encourage Shared Experience***

Creating shared meaning is highly dependent on an organization's ability to share experiences. Shared meanings are difficult because everyone comes to an event or idea with different experiences. **Sharing experiences is the only way in which an organization can make sense of diverse levels of understanding.** To engage members of a culture to share stories about their experiences requires a commitment to expend time during the workday.

"Remember when we..... ", is all it takes to evoke a form of sharing. People who share experiences are the foundations of a strong organizational culture. The commonality of having done something together and the subsequent sharing of that experience help us understand the sense that the others have made. This act of sharing experiences helps an organization make sense of the collective capacity it has to tackle new tasks in the future.

- ***Expectations Are Real***

Expectations serve as filters of reality. What is *expected*, guides what is important for members of a community. **Expectations can shape the actions of a school in the direction of what is expected.** Therefore, expectations become powerful partners of goals.

If expectations serve as powerful filters, people need to create them with care, because expectations are influenced by a mixture of myth, peer pressure, accidents, stereotypes, hearsay, avoidance, fiction, and wishful thinking. Leaders must become mindful of the expectations that exist in their environments. If leaders are not careful, their own expectations can easily blind an organization by filtering only that which corresponds to his or her wishes. Herein lies the danger of expectations. If you are not careful, you will get distorted pictures of how well you have lived up to your expectations. As a leader, you must deliberately look for positive and negative feedback.

Whenever possible, people should write out what they expect will happen in given situations, and why they feel it will happen. Then they should carefully compare what really happened with their initial expectations. When a leader does this, realistic expectations will be

uncovered, and you can now set about reformulating actions based on sound practices of sensemaking. **This can serve to prevent self-fulfilling prophecies or cycles of predictable failure.**

Sensemaking Guide

Please use the following worksheet to make sense of your actions as a leader.

What kinds of walks have we taken?

What words or phrases describe what is happening in the classrooms of our school?

How did our classrooms emerge (what is the history of our classroom and their practices)?

How do members of our school community share experiences on a routine basis?

What expectations do you have over the next three months?

Video Part Two: Leader as Sensemaker

Reflective Questions

Seven Sensemaking Tools

(Participants should write down their responses.)

- What's the difference between "talking your walk" and "walking your talk"? What would you be doing if you were talking your walk?

- What kinds of pictures do your words create? Communication is a two-way process. What kind of feedback is necessary to ensure that the message you sent was the message received?

- What are some rituals and ceremonies at your school and how did they come to be? Describe some of the artifacts or symbols at your school and why they are valued?

- What is the general reaction to meetings at your school? Why? How do your meetings encourage discussion and dialog?

- What verbs would describe your school? What verbs would you like to have be descriptions of your school?

- What kinds of stories are told about your school community? What kind of shared experiences do you create for your school community?

- What are the school community's expectations of you? How can you make your expectations realistic yet challenging?

- What are the implications of these seven tools on your role as leader?

Facilitator's Notes on Tipping Points: A Meta Frame for School Change

Tipping point = Assets + Readiness + Complexity

The tipping point is an epidemiological juncture that signifies the start or end of an epidemic. It has been applied to certain sociological phenomenon such as the reduction of crime in New York City, or the escalation of "white flight."

- **Assets** can be derived from three sources:
    - **Financial Assets** – the amount of cash and material that one can bring to bear on a proposal for change.
    - **Human Assets** – the amount of wisdom and expertise that one can call upon to support the proposal for change.
    - **Geographical Assets** – the assets that can be derived from one's geographical and environmental conditions and location. Climate, soil, natural capital, and amount and type of space are all assets that can support a proposal of change.

- **Readiness** is determined by presence of expertise and spirit. Expertise is defined as the capacity to engage in the work called forth in a proposal for change. Spirit is defined as the presence of will and gumption to engage in the work, or the sum total of one's *satyagraha* – Ghandi's soul force. Satyagraha is highly dependent on the assumptions and beliefs of each individual member of the assembly.

- **Complexity** is associated with the work itself or the language one uses to describe the work. In many cases the language utilized makes the work itself more complex. The eventual success of a proposal is highly dependent on the sense of efficacy that people have about the proposed change.

Source: Information taken from the book *The Tipping Point* by Malcolm Gladwell, Little, Brown and Company (2000).

The Tipping Point

Why is the city suddenly so much safer---could it be that crime really is an epidemic?

1.

As you drive east on Atlantic Avenue, through the part of New York City that the Police Department refers to as Brooklyn North, the neighborhoods slowly start to empty out: the genteel brownstones of the western part of Brooklyn give way to sprawling housing projects and vacant lots. Bedford-Stuyvesant is followed by Bushwick, then by Brownsville, and, finally, by East New York, home of the Seventy-fifth Precinct, a 5.6-square-mile tract where some of the poorest people in the city live. East New York is not a place of office buildings or parks and banks, just graffiti-covered bodegas and hair salons and auto shops. It is an economically desperate community destined, by most accounts, to get more desperate in the years ahead-which makes what has happened there over the past two and a half years all the more miraculous. In 1993, there were a hundred and twenty-six homicides in the Seven-Five, as the police call it. Last year, there were forty-four. There is probably no other place in the country where violent crime has declined so far, so fast.

Once the symbol of urban violence, New York City is in the midst of a strange and unprecedented transformation. According to the preliminary crime statistics released by the F.B.I. earlier this month, New York has a citywide violent-crime rate that now ranks it a hundred and thirty-sixth among major American cities, on a par with Boise, Idaho. Car thefts have fallen to seventy-one thousand, down from a hundred and fifty thousand as recently as six years ago. Burglaries have fallen from more than two hundred thousand in the early nineteen-eighties to just under seventy-five thousand in 1995. Homicides are now at the level of the early seventies, nearly half of what they were in 1990. Over the past two and a half years, every precinct in the city has recorded double-digit decreases in violent crime. Nowhere, however, have the decreases been sharper than Brooklyn North, in neighborhoods that not long ago were all but written off to drugs and violence. On the streets of the Seven-Five today, it is possible to see signs of everyday life that would have been unthinkable in the early nineties. There are now ordinary people on the streets at dusk-small children riding their bicycles, old people on benches and stoops, people coming out of the subways alone. "There was a time when it wasn't uncommon to hear rapid fire, like you would hear somewhere in the jungle in Vietnam," Inspector Edward A. Mezzadri, who commands the Seventy-fifth Precinct, told me. "You would hear that in Bed-Stuy and Brownsville and, particularly, East New York all the time. I don't hear the gunfire anymore. I've been at this job one year and twelve days. The other night when I was going to the garage to get my car, I heard my first volley. That was my first time."

But what accounts for the drop in crime rates? William J. Bratton-who as the New York City Police Commissioner presided over much of the decline from the fall of 1994 until his resignation, this spring-argues that his new policing strategies made the difference: he cites more coördination between divisions of the N.Y.P.D., more accountability from precinct commanders, more arrests for gun possession, more sophisticated computer-aided analysis of crime patterns, more aggressive crime prevention. In the Seven-Five, Mezzadri has a team of officers who go around and break up the groups of young men who congregate on street corners, drinking, getting high, and playing dice-and so remove what was once a frequent source of violent confrontations. He says that he has stepped up random "safety checks" on the streets, looking for drunk drivers or stolen cars. And he says that streamlined internal procedures mean that he can now move against drug-selling sites in a matter of days, where it used to take weeks. "It's aggressive policing," he says. "It's a no-nonsense attitude. Persistence is not just a word, it's a way of life."

All these changes make good sense. But how does breaking up dice games and streamlining bureaucracy cut murder rates by two-thirds? Many criminologists have taken a broader view, arguing that changes in crime reflect fundamental demographic and social trends-for example, the decline and stabilization of the crack trade, the aging of the population, and longer prison sentences, which have kept hard-core offenders off the streets. Yet these trends are neither particularly new nor unique to New York City; they don't account for why the crime rate has dropped so suddenly here and now. Furthermore, whatever good they have done is surely offset, at least in part, by the economic devastation visited on places like Brownsville and East New York in recent years by successive rounds of federal, state, and city social-spending cuts.

It's not that there is any shortage of explanations, then, for what has happened in New York City. It's that there is a puzzling gap between the scale of the demographic and policing changes that are supposed to have affected places like the Seven-Five and, on the other hand, the scale of the decrease in crime there. The size of that gap suggests that violent crime doesn't behave the way we expect it to behave. It suggests that we need a new way of thinking about crime, which is why it may be time to turn to an idea that has begun to attract serious attention in the social sciences: the idea that social problems behave like infectious agents. It may sound odd to talk about the things people do as analogous to the diseases they catch. And yet the idea has all kinds of fascinating implications. What if homicide, which we often casually refer to as an epidemic, actually is an epidemic, and moves through populations the way the flu bug does? Would that explain the rise and sudden decline of homicide in Brooklyn North?

2.

When social scientists talk about epidemics, they mean something very specific. Epidemics have their own set of rules. Suppose, for example, that one summer a thousand tourists come to Manhattan from Canada carrying an untreatable strain of twenty-four-hour flu. The virus has a two-per-cent infection rate, which is to say that one out of every fifty people who come into close contact with someone carrying it catches the bug himself. Let's say that fifty is also exactly the number of people the average Manhattanite-in the course of riding the subways and mingling with colleagues at work-comes into contact with every day. What we have, then, given the recovery rate, is a disease in equilibrium. Every day, each carrier passes on the virus to a new person. And the next day those thousand newly infected people pass on the virus to another thousand people, so that throughout the rest of the summer and the fall the flu chugs along at a steady but unspectacular clip.

But then comes the Christmas season. The subways and buses get more crowded with tourists and shoppers, and instead of running into an even fifty people a day, the average Manhattanite now has close contact with, say, fifty-five people a day. That may not sound like much of a difference, but for our flu bug it is critical. All of a sudden, one out of every ten people with the virus will pass it on not just to one new person but to two. The thousand carriers run into fifty-five thousand people now, and at a two-per-cent infection rate that translates into eleven hundred new cases the following day. Some of those eleven hundred will also pass on the virus to more than one person, so that by Day Three there are twelve hundred and ten Manhattanites with the flu and by Day Four thirteen hundred and thirty-one, and by the end of the week there are nearly two thousand, and so on up, the figure getting higher every day, until Manhattan has a full-blown flu epidemic on its hands by Christmas Day.

In the language of epidemiologists, fifty is the "tipping point" in this epidemic, the point at which an ordinary and stable phenomenon-a low-level flu outbreak- can turn into a public-health crisis. Every epidemic has its tipping point, and to fight an epidemic you need to understand what that point is. Take AIDS, for example. Since the late eighties, the number of people in the United States who die of AIDS

every year has been steady at forty thousand, which is exactly the same as the number of people who are estimated to become infected with H.I.V. every year. In other words, AIDS is in the same self-perpetuating phase that our Canadian flu was in, early on; on the average, each person who dies of aids infects, in the course of his or her lifetime, one new person.

That puts us at a critical juncture. If the number of new infections increases just a bit-if the average H.I.V. carrier passes on the virus to slightly more than one person-then the epidemic can tip upward just as dramatically as our flu did when the number of exposed people went from fifty to fifty-five. On the other hand, even a small decrease in new infections can cause the epidemic to nosedive. It would be as if the number of people exposed to our flu were cut from fifty to forty-five a day-a change that within a week would push the number of flu victims down to four hundred and seventy-eight.

Nobody really knows what the tipping point for reducing AIDS may be. Donald Des Jarlais, an epidemiologist at Beth Israel Hospital, in Manhattan, estimates that halving new infections to twenty thousand a year would be ideal. Even cutting it to thirty thousand, he says, would probably be enough. The point is that it's not some completely unattainable number. "I think people think that to beat AIDS everybody has to either be sexually abstinent or use a clean needle or a condom all the time," Des Jarlais said. "But you don't really need to completely eliminate risk. If over time you can just cut the number of people capable of transmitting the virus, then our present behavior-change programs could potentially eradicate the disease in this country."

That's the surprising thing about epidemics. They don't behave the way we think they will behave. Suppose, for example, that the number of new H.I.V. infections each year was a hundred thousand, and by some heroic aids- education effort you managed to cut that in half. You would expect the size of the epidemic to also be cut in half, right? This is what scientists call a linear assumption-the expectation that every extra increment of effort will produce a corresponding improvement in result. But epidemics aren't linear. Improvement does not correspond directly to effort. All that matters is the tipping point, and because fifty thousand is still above that point, all these heroics will come to naught. The epidemic would still rise. This is the fundamental lesson of nonlinearity. When it comes to fighting epidemics, small changes-like bringing new infections down to thirty thousand from forty thousand-can have huge effects. And large changes-like reducing new infections to fifty thousand from a hundred thousand-can have small effects. It all depends on when and how the changes are made.

The reason this seems surprising is that human beings prefer to think in linear terms. Many expectant mothers, for example, stop drinking entirely, because they've heard that heavy alcohol use carries a high risk of damaging the fetus. They make the perfectly understandable linear assumption that if high doses of alcohol carry a high risk, then low doses must carry a low- but still unacceptable-risk. The problem is that fetal-alcohol syndrome isn't linear. According to one study, none of the sixteen problems associated with fetal-alcohol syndrome show up until a pregnant woman starts regularly consuming more than three drinks a day. But try telling that to a neurotic nineties couple.

I can remember struggling with these same theoretical questions as a child, when I tried to pour ketchup on my dinner. Like all children encountering this problem for the first time, I assumed that the solution was linear: that steadily increasing hits on the base of the bottle would yield steadily increasing amounts of ketchup out the other end. Not so, my father said, and he recited a ditty that, for me, remains the most concise statement of the fundamental nonlinearity of everyday life: Tomato ketchup in a bottle-None will come and then the lot'll

3.

What does this have to do with the murder rate in Brooklyn? Quite a bit, as it turns out, because in recent years social scientists have started to apply the theory of epidemics to human behavior. The foundational work in this field was done in the early seventies by the economist Thomas Schelling, then at Harvard University, who argued that "white flight" was a tipping-point phenomenon. Since that time, sociologists have actually gone to specific neighborhoods and figured out what the local tipping point is. A racist white neighborhood, for example, might empty out when blacks reach five per cent of the population. A liberal white neighborhood, on the other hand, might not tip until blacks make up forty or fifty per cent. George Galster, of the Urban Institute, in Washington, argues that the same patterns hold for attempts by governments or developers to turn a bad neighborhood around. "You get nothing until you reach the threshold," he says, "then you get boom."

Another researcher, David Rowe, a psychologist at the University of Arizona, uses epidemic theory to explain things like rates of sexual intercourse among teen-agers. If you take a group of thirteen-year-old virgins and follow them throughout their teen-age years, Rowe says, the pattern in which they first have sex will look like an epidemic curve. Non-virginity starts out at a low level, and then, at a certain point, it spreads from the precocious to the others as if it were a virus.

Some of the most fascinating work, however, comes from Jonathan Crane, a sociologist at the University of Illinois. In a 1991 study in the American Journal of Sociology, Crane looked at the effect the number of role models in a community-the professionals, managers, teachers whom the Census Bureau has defined as "high status"-has on the lives of teen-agers in the same neighborhood. His answer was surprising. He found little difference in teen-pregnancy rates or school-dropout rates in neighborhoods with between forty and five per cent of high-status workers. But when the number of professionals dropped below five per cent, the problems exploded. For black school kids, for example, as the percentage of high- status workers falls just 2.2 percentage points-from 5.6 per cent to 3.4 per cent-dropout rates more than double. At the same tipping point, the rates of childbearing for teen-age girls-which barely move at all up to that point-nearly double as well.

The point made by both Crane and Rowe is not simply that social problems are contagious-that non-virgins spread sex to virgins and that when neighborhoods decline good kids become infected by the attitudes of dropouts and teen-age mothers. Their point is that teen-age sex and dropping out of school are contagious in the same way that an infectious disease is contagious. Crane's study essentially means that at the five-per-cent tipping point neighborhoods go from relatively functional to wildly dysfunctional virtually overnight. There is no steady decline: a little change has a huge effect. The neighborhoods below the tipping point look like they've been hit by the Ebola virus.

It is possible to read in these case studies a lesson about the fate of modern liberalism. Liberals have been powerless in recent years to counter the argument that their policy prescriptions don't work. A program that spends, say, an extra thousand dollars to educate inner-city kids gets cut by Congress because it doesn't raise reading scores. But if reading problems are nonlinear the failure of the program doesn't mean-as conservatives might argue-that spending extra money on inner-city kids is wasted. It may mean that we need to spend even more money on these kids so that we can hit their tipping point. Hence liberalism's crisis. Can you imagine explaining the link between tipping points and big government to Newt Gingrich? Epidemic theory, George Galster says, "greatly complicates the execution of public policy. . . . You work, and you work, and you work, and if you haven't quite reached the threshold you don't seem to get any payoff. That's a very tough situation to sustain politically."

At the same time, tipping points give the lie to conservative policies of benign neglect. In New York City, for example, one round of cuts in, say, subway maintenance is justified with the observation that the previous round of cuts didn't seem to have any adverse consequences. But that's small comfort. With epidemic problems, as with ketchup, nothing comes and then the lot'll.

4.

Epidemic theory, in other words, should change the way we think about whether and why social programs work. Now for the critical question: Should it change the way we think about violent crime as well? This is what a few epidemiologists at the Centers for Disease Control, in Atlanta, suggested thirteen years ago, and at the time no one took them particularly seriously. "There was just a small group of us in an old converted bathroom in the sub- subbasement of Building Three at C.D.C.," Mark L. Rosenberg, who heads the Centers' violence group today, says. "Even within C.D.C., we were viewed as a fringe group. We had seven people and our budget was two hundred thousand dollars. People were very skeptical." But that was before Rosenberg's group began looking at things like suicide and gunshot wounds in ways that had never quite occurred to anyone else. Today, bringing epidemiological techniques to bear on violence is one of the hottest ideas in criminal research. "We've got a hundred and ten people and a budget of twenty-two million dollars," Rosenberg says. "There is interest in this all around the world now."

The public-health approach to crime doesn't hold that all crime acts like infectious disease. Clearly, there are neighborhoods where crime is simply endemic-where the appropriate medical analogy for homicide is not something as volatile as aids but cancer, a disease that singles out its victims steadily and implacably. There are, however, times and places where the epidemic model seems to make perfect sense. In the United States between the early sixties and the early seventies, the homicide rate doubled. In Stockholm between 1950 and 1970, rape went up three hundred per cent, murder and attempted murder went up six hundred per cent, and robberies a thousand per cent. That's not cancer; that's aids.

An even better example is the way that gangs spread guns and violence. "Once crime reaches a certain level, a lot of the gang violence we see is reciprocal," Robert Sampson, a sociologist at the University of Chicago, says. "Acts of violence lead to further acts of violence. You get defensive gun ownership. You get retaliation. There is a nonlinear phenomenon. With a gang shooting, you have a particular act, then a counter-response. It's sort of like an arms race. It can blow up very quickly."

How quickly? Between 1982 and 1992, the number of gang-related homicides in Los Angeles County handled by the L.A.P.D. and the County Sheriff's Department went from a hundred and fifty-eight to six hundred and eighteen. A more interesting number, however, is the proportion of those murders which resulted from drive-by shootings. Between 1979 and 1986, that number fluctuated, according to no particular pattern, between twenty-two and fifty-one: the phenomenon, an epidemiologist would say, was in equilibrium. Then, in 1987, the death toll from drive-bys climbed to fifty-seven, the next year to seventy-one, and the year after that to a hundred and ten; by 1992, it had reached two hundred and eleven. At somewhere between fifty and seventy homicides, the idea of drive-by shootings in L.A. had become epidemic. It tipped. When these results were published last fall in the Journal of the American Medical Association, the paper was entitled "The Epidemic of Gang-Related Homicides in Los Angeles County from 1979 Through 1994." The choice of the word "epidemic" was not metaphorical. "If this were a disease," H. Range Hutson, the physician who was the leading author on the study, says, "you would see the government rushing down here to assess what infectious organism is causing all these injuries and deaths."

Some of the best new ideas in preventing violence borrow heavily from the principles of epidemic theory. Take, for example, the so-called "broken window" hypothesis that has been used around the country as the justification for cracking down on "quality of life" crimes like public urination and drinking. In a famous experiment conducted twenty-seven years ago by the Stanford University psychologist Philip Zimbardo, a car was parked on a street in Palo Alto, where it sat untouched for a week. At the same time, Zimbardo had an identical car parked in a roughly comparable neighborhood in the Bronx, only in this case the license plates were removed and the hood was propped open. Within a day, it was stripped. Then, in a final twist, Zimbardo smashed one of the Palo Alto car's windows with a sledgehammer. Within a few hours, that car, too, was destroyed. Zimbardo's point was that disorder invites even more disorder-that a small deviation from the norm can set into motion a cascade of vandalism and criminality. The broken window was the tipping point.

The broken-window hypothesis was the inspiration for the cleanup of the subway system conducted by the New York City Transit Authority in the late eighties and early nineties. Why was the Transit Authority so intent on removing graffiti from every car and cracking down on the people who leaped over turnstiles without paying? Because those two "trivial" problems were thought to be tipping points-broken windows-that invited far more serious crimes. It is worth noting that not only did this strategy seem to work-since 1990, felonies have fallen more than fifty per cent-but one of its architects was the then chief of the Transit Police, William Bratton, who was later to take his ideas about preventing crime to the city as a whole when he became head of the New York Police Department.

Which brings us to North Brooklyn and the Seventy- fifth Precinct. In the Seven-Five, there are now slightly more officers than before. They stop more cars. They confiscate more guns. They chase away more street-corner loiterers. They shut down more drug markets. They have made a series of what seem, when measured against the extraordinary decline in murders, to be small changes. But it is the nature of nonlinear phenomena that sometimes the most modest of changes can bring about enormous effects. What happened to the murder rate may not be such a mystery in the end. Perhaps what William Bratton and Inspector Mezzadri have done is the equivalent of repairing the broken window or preventing that critical ten or fifteen thousand new H.I.V. infections. Perhaps Brooklyn-and with it New York City-has tipped.

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Workshop 2: Leader as Sensemaker

Tipping Points Activity

Gladwell believes that people with special gifts are all around us. It only takes a few of these people to accomplish a majority of the work needed to spread "an epidemic." There are three types of people needed to create a "tipping point." And as leaders, we need to make sure that we draw on the wealth of human assets that are available to us and use their gifts to help us spread our ideas in a way that creates an epidemic.

- **Connectors** know a lot of people from many different groups and subcultures. They have a special gift for bringing people together. How might you find out who your connectors are? Who might the connectors be at your school? How might your connectors help to bring your school community together?

- **Mavens** are specialists who gather information based on research and experience. They are willing to share their knowledge to help others but will not try to persuade you if you don't believe them. Who are the mavens at your school? What information or experience do they have that will help move your school towards a desired change?

- **Salesmen** have the skill to persuade people when they're not convinced about an idea. Salesmen have the ability to package ideas in a way that makes them irresistible, memorable, and moves people to action. How can you utilize the skills of the salesmen to bring about change at your school? Do you have salesmen at your school? What might be the cautions when asking salesmen to help move people to action?

Workshop 2: Leader as Sensemaker

Tipping Points Activity

As you walk around your campus, attend meetings, etc., think about the assets inventory and the readiness inventory.

- Are there people in my school community that have talents I was not aware of?

- Who has untapped talents? What are the talents? How can they help in the change process?

- What other evidence do I have that my school is or is not ready to move on to a new initiative?

- What other new findings did I discover as I looked upon my school?

Workshop 2: Leader as Sensemaker

Tipping Points Reflective Questions

- What assets do you have in your school community? Create an inventory of those assets. (Use the assets inventory handout for this question.)

- Think about an initiative. Do we have enough information about the initiative? Can my current structure and system support the change? How complex is it? Is it a change that may have second- and third-level consequences? How many people will be affected and what kind of impact will it have? (Use the readiness inventory sheet for this question.)

- As a leader, what can you do to deliberately start and control positive epidemics of your own?

- What changes, programs, and initiatives in your school can you identify that are close to reaching the Tipping Point? What are your thoughts and feelings about the Tipping Point?

- What were the most interesting insights you gained from this video or video segment?

Workshop 2: Leader as Sensemaker

Assets Inventory

Area	Assets
Financial (money and material)	
Human (wisdom and expertise of your staff, parents, and general community)	
Geographical (location and environmental conditions)	

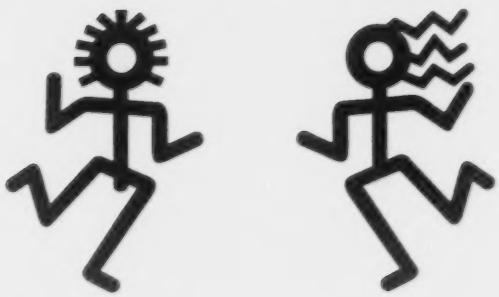
Workshop 2: Leader as Sensemaker

Readiness Inventory

Question	Answer With Evidence	Possible Next Steps
Do we have enough information about the initiative?		
Assets Do we have the human assets to help us with the initiative?		
Readiness Can our current structure and system support the change?		
Complexity How complex is this change? Do I know the second- and third-level consequences of the change? How many people will this change affect? What kind of impact will this change have on my school?		

Workshop 2

Leader as Sensemaker



Evaluation Form

Workshop 2: Leader as Sensemaker

Evaluation Form

I expected:	I got:
I value:	Next, I will:

Workshop 3

Leader as Change Agent

Outline of Workshop 3: Leader as Change Agent

Main Ideas of Workshop 3:

- Change agents are able to go beyond theories to putting ideas into action.
- Action mapping engages members of a school community in the change process.

Desired Outcomes for Workshop 3:

- Participants will begin to use the action-mapping process.

Estimated Time:

- The amount of time for the session will be dependent upon each individual facilitator. The readings and small group activities a facilitator selects will vary.

Materials List:

- Video Part 3: *Leader as Change Agent*
- Action-mapping handout for each participant
- Action-mapping worksheet for each participant

Directions for the Facilitator

Opening Workshop 3:

- Welcome everyone back for Workshop 3– *Leader as Change Agent*. Have participants discuss the term "change agent" and what that means to them. Ask participants to pair with a partner they haven't spent a lot of time with in these workshops or discuss as a large group.

Agenda and Ground Rules:

- Review the agenda and ground rules with participants. Ask if there are any other ground rules the group would like to consider.

Introduction to Mapping:

- Ask the question: "If you were going to a foreign country or to someplace you have never been, what would be most helpful?" (The answer we are searching for is "a map.")

- When we enter into the change process, it is like going to a foreign country. We don't know what it's like because we've never been there before; we could have read up on it, but we've never personally experienced it. That's why in the change process, like a trip to a foreign country, we need a map.

- In Video Part 3, Dr. Matsui will walk us through a process called "action mapping." Action mapping can engage members of the school community in planning specific steps toward the desired change.

Distribute Handout on Action Mapping:

- Give participants about 15-20 minutes to read through the handout and become familiar with some of the terms and the flow of the action map. The action map exercise is a modified version of what is explained in "Action Mapping: A Planning Tool for Change," the 1997 paper written by Dr. Matsui.

Video Part Three:

- Have participants view the video with a specific change effort they are engaging in at their school in mind.

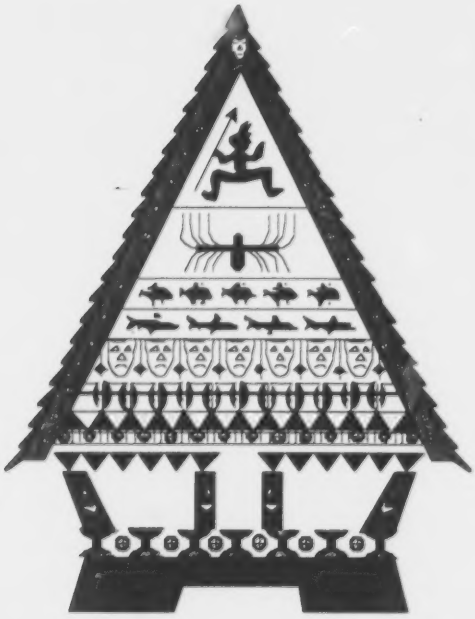
Reflective Questions:

- After each step, ask participants these reflective questions:
  a. What is your destination or desired change?
  b. Who would be in your assemblage? Who are the stakeholders?
  c. What information do you have and what do you need to find out?
  d. What actions will you be taking and who will carry them out?
  e. What data will you use as a basis of reflection?
  f. Who will you tell your story to?

- More reflective questions: How can you use this process in your school? When implementing this process, what obstacles might you encounter?

Workshop 3

Leader as Change Agent



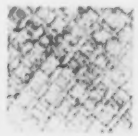
Suggested Activities for Participants

ACTION MAPPING

A PLANNING TOOL FOR CHANGE

August 1997

BRUCE I. MATSUI
The Claremont Graduate School



About the Author

Dr. Bruce I. Matsui is currently a professor at the Center for Educational Studies of the Claremont Graduate School. Prior to his current position, Dr. Matsui spent 17 years as an administrator in the Montebello Unified School District, served as the Director of the Los Angeles County School Leadership Center, and was the Deputy Superintendent of the Pasadena Unified School District.

His current interest involves large system educational reform and the attributes of leadership for the coming century. He is currently engaged in the assessment of the SB 1274 demonstration schools project in California and the LEARN project in Los Angeles. Much of the article draws upon his interests in the systems thinking that has evolved from the earlier works of systems analysis.

Foreword

Why is it that we can so accurately predict the future achievements of students who share certain attributes such as ethnicity, socio-economic background, neighborhoods, and parental structures?

I have had a lifelong interest in first understanding the cause of such cycles of predictability and then discovering the means by which we can break such cycles. Recently, I have begun to use processes that call upon schools to make sense of their environments before adopting programs. Only by understanding the patterns of relationships in one's environment can we hope to influence the introduction of new ideas. Leaders in the new century will have to rely upon skills that are far different from those utilized in the past. Action mapping serves as a meta-process for moving schools toward desired ends. Action mapping calls upon school leaders to move into action, to reflect upon such actions, and to collect stories for future reflections.

This process could be helpful to a school going through accreditation with the Western Association of Schools and Colleges (WASC). Action mapping could be used to consolidate a school's WASC self-study findings into a schoolwide action plan. The development of a

schoolwide action plan is described in an earlier PREL monograph titled, "Focus on Learning."

ACTION MAPPING
A PLANNING TOOL FOR CHANGE

The purpose of this article is to: (1) put forward a position that challenges current planning processes, and (2) posit, instead, a sense-making process that allows organizations to transform themselves in seemingly chaotic environments.

Introduction

When researchers listen carefully to conversations about school change, they find that carefully constructed strategic plans are rarely utilized for the periods they purport to cover. Said differently, five-year plans rarely last five years. The majority of five-year plans are never put into action; they are simply set aside for amendments or abandoned completely (Stacey, 1992). Common flaws of such plans are caused by assumptions embedded in the legal-rational paradigm that has governed much of our thinking for the past century.

The Legal-Rational Paradigm

The father of modern-day legal-rational theorists, Max Weber, believed that goals were best met by meritocratic organizations. In Weber's legal-rational theory, organizations work best when orchestrated by informed leaders at the top. In Weber's model, an organization with meritocratic practices continually promotes its brightest and most productive workers to the top, thereby ensuring

enlightened decisions that benefit the entire workplace. Weber believed that the best and brightest deservedly held the power to hold the lower-archy accountable. For the better part of this century, these beliefs have created a myth that a well-organized chain of command could and should control the productivity of workers throughout an entire workplace. Stacey (1992) observed:

> Underlying today's mental models is the unquestioned assumption that observed effects can be directly linked to causes in a straightforward, linear fashion - that our actions and their outcomes can be, in principle at least, unequivocally connected to each other. (pp. 41-42)

Earlier, Barnard (1938) questioned the validity of this assumption, as follows:

> If a directive communication is accepted by one to whom it is addressed, its authority for him is confirmed or established. It is admitted as the basis of action. Disobedience of such a communication is a denial of its authority for him. Therefore, under this definition the decision as to whether an order has authority or not lies with the persons to whom it is addressed, and does not reside in 'persons of authority' or those who issue orders. In the final analysis the authority fails because the individuals in sufficient numbers regard the burden involved in accepting necessary order as changing the balance of advantage against their interest, and they withdraw or withhold the indispensable contributions. (pp. 163-65)

Weick (1969, 1979), among others, began to observe that the legal-rational view was increasingly difficult to support. In describing the daily life of an organization, Weick (1969) wrote:

> Organizations deal with streams of materials, people, money, time, solutions, problems and choices. Streams can be a useful metaphor to portray the continuous flux associated with organizations, but there are some subtleties in this image. A stream might be visualized as a single homogeneous viscuous flow that moves at a constant rate. Such a visualization is unduly limiting as a portrait of organizational processes, and a more appropriate image would be that of multiple, heterogeneous flows of diverse viscosity moving at variable rates. If you can visualize something moving between two points, and then visualize the points also moving, that's what flows in organizations are like. (p.42)

Because complex workplaces are more difficult to direct, organizations controlled from the "top" expend an enormous amount of their resources developing plans that are layered with controlling mechanisms (Argyris, 1990; Senge, 1990; Fullan, 1993; Stacey, 1992). As legal-rational organizations attempt to monitor and control the workplace, their plans are mired in layers of incentives, timelines with targeted dates, specific goals accompanied by prescriptive objectives, and policies that govern what one does or does not do. Such organizations come to perceive themselves as controllable entities, consisting of parts that, when meshed together, function in predictable ways. Unlike the metaphor of a moving stream, legal-rational organizations commonly believe themselves to be finely-tuned machines. The policies and guidelines of these mechanized workplaces emphasize the need for carefully sequenced, logical actions.

Legal-rational thinking is a by-product of a Newtonian perspective. A person with a Newtonian outlook believes that events are controlled by practices based on carefully constructed, logical plans. In contrast, systems thinkers view these practices as "iffy" at best, for such beliefs ignore the chaotic and unpredictable nature of the real world.

Systems Thinking

Fritjof Capra, the quantum physicist and author of *The Tao of Physics (1988)*, Margaret Wheatley, the author of *Leadership and the New Science (1992)*, Peter Senge, the author of *The Fifth Discipline*, and semeiticians A. S. Lamb and J. Regan (1982) have begun to incorporate principles from quantum physics into their perceptions of organizations. Unlike the Newtonian perspective, systems thinkers view the universe as a whole, not as an assembly of controllable parts. These authors challenge the legal-rational belief that workplaces can be leveraged, tamed, and controlled from the top. Where legal-rational authors seek logical building blocks for predictable environments, systems thinkers believe that future environments are unpredictable and ambiguous. In the legal-rational world, creating rules and regulations, monitoring workloads, and assessing each piece of the organization separately are essential. In the emerging systems perspective, the whole system is greater than the sum of its parts. In systems thinking, change is highly dependent on ways that the entire system introduces, engages, and inducts information.

In systems thinking, the real world is ambiguous, filled with paradoxes of chaos and order, growth and decline, and predictability and unpredictability. For organizations that attempt to create plans based on predictable events, the reality of their worlds remain utterly unpredictable. An unpredictable world makes many of the beliefs of the legal-rational theorists untenable. As Stacey (1992) states:

> The great importance of the discoveries about nonlinear feedback systems - that is, about chaos and self-organization - is that they make the whole worldview (Newtonian) completely untenable. We now know that most of nature's systems are nonlinear feedback ones that function in many respects in a chaotic, and therefore unpredictable, continuously creative manner that makes simple ideas of controlling them impractical. (p.124)

This article argues that organizations utilizing planning mechanisms that provide nonlinear feedback work better than organizations that carefully craft strategic plans that assume predictable futures. The remainder of this article introduces the reader to an alternative form of planning called *action mapping* that asks organizations to link key components of change into an integrated circuit that produces deep and lasting changes.

Action Mapping

Action mapping assumes that organizations value networks that support the flow of information throughout its system. In action mapping, those responsible for producing success share the responsibilities of developing wisdom for an entire organization. Action mapping believes that change requires support from the organizational hierarchy. In action mapping, work, or action taken, is "the" essential indicator of success. The quality of one's work represents the re-formation of a system. Without the engagement of each member of the community, change remains an illusion. Action mapping strongly believes that each participant in a system has a capacity to contribute ideas that enhance and sustain the system.

As a workplace employs action mapping, its system moves away from a paradigm of control and dominance to one of commitment and relationships. Action mapping builds on planning strategies that challenge earlier methods associated with legal-rational thinking.

More than a decade earlier, Elmore (1983) and Odden and Odden (1984) outlined an alternative planning process that they called *backward mapping*. Action mapping builds upon the process of backward mapping by beginning with the formal gathering of key stakeholders. Action mapping goes on to advocate a position that individuals charged with the implementation of change must be allowed to use an assortment of pathways (action hypothesis) to get to the organization's goals. In action mapping, the organization begins with a clear understanding of the desired change and encourages individuals to utilize *their* strengths.

In action mapping, leaders must be: 1) supportive of local planning processes, 2) willing to assist the change process with their expertise, and 3) willing to provide the necessary time and funds. Leaders of action mapping are guided by the following questions:

- Who is responsible for delivering the change?
- What resources are currently available?
- What obstacles have to be overcome?
- What are possible solutions and where are they located?
- How can the learning history of the organization help us?
- What will we keep, fix, stop, and start as we begin our journey?
- How will we keep track of the journey?
- How will we tell stories about what we have learned?

The action map is based on the collective wisdom of the assemblage of people who will be affected by the proposed change. Information is critical to the creation of a map. The action map is highly dependent on a network of relationships within the workplace that serves to carry the flow of information to its membership. In the end, the success of the process depends on actions taken and reflected upon by the individuals in an assemblage.

Applying the Process to Organizations

What, for what, and so what? What will we do? Where are we doing it? And, how will it help us? These are all questions that surface at the beginning of a change process.

Action mapping responds to these questions by serving as a sense-making tool that links the past, present, and future. It starts with the cumulative knowledge and abilities of all members, and culminates in a hypothesized set of actions, on which the members of the assemblage reflect.

Action mapping rests upon the following assumptions:

1. Managing change is unpredictable and non-rational.
   In California, carefully crafted goals and objectives for the 1996 - 1997 school year were set aside by an unanticipated decision to reduce the size of classes in the primary grades. Resources that were originally linked to the well-planned agenda of the previous spring were suddenly diverted to meet the demands of the new and unanticipated mandate to reduce class size. Elementary schools were faced with the task of having to make sense out of an unpredicted development. Their previous plans were casualties of an unpredictable and non-rational world.
2. Change results from the induction of selected information.
   Wheatley (1994) states that information *informs*

The Components of Action Mapping

Action maps require the integration of the following components: 1) Assemblage, 2) Accumulation and Production of Wisdom, 3) Actions as Hypothesis, 4) Conservation of Energy, 5) Reflection on Action, and 6) Storytelling. Each component is now described.

I. Assemblage

Webster's dictionary defines *as-sem-blage* as: 1.a. The act of assembling; b. The state of being assembled. 2. A collection of people, a gathering. 3. A fitting together of parts.

In this component, an organization acts to gather everyone affected by the change, especially those who are expected to deliver the product. An assemblage is an intentionally inclusive community. The relationships formed within such an assemblage act as a conduit of new information. The nurturing of strengths and diversities through open processes is a non-negotiable function of an inclusive assemblage. An assemblage that continually eliminates diverse viewpoints will grow weaker because the strengths of its membership will never be fully realized.

II. Accumulation and Production of Wisdom

An assemblage, when viewed as a dynamic and enlightened entity, is enormously capable of producing desired changes. Each assemblage's potential includes collective acquired wisdom. Each also has an enormous potential to produce greater wisdom. Before attempting to introduce change, a wise assemblage determines the depth of its accumulated wisdom. If the members discover that their wells of wisdom are not deep enough, the assemblage employs strategies to dig deeper or new wells to augment its reservoir of wisdom.

Organizational wisdom is sustained in three forms.

1. Information is internalized through formal learning such as: a) articles and videotapes, b) formal education, and c) attendance at lectures and workshops.
2. Information is gained through experiences.
3. Expertise is acquired in the use of tools and strategies.

Once determined, the collected wisdom is clarified, categorized, archived, and distributed as a valuable organizational resource.

As a result of determining the accumulated levels of wisdom, the assemblage may take actions to augment its current level of knowledge. It can do so by attending workshops, calling on outside experts, engaging in professional readings, hiring experts in the use of certain tools, and hiring coaches in the use of interesting strategies. The ability to produce wisdom is the primary benchmark of a learning community. Accumulation and production of wisdom may also serve to control an organization's journey toward its desired destinations.

III. Actions as Hypothesis

In an inclusive assemblage, everyone does not have to travel the same route. In fact, getting "there" is strengthened by non-routine pathways (Stacey, 1993), and weakened by the insistence on "a" particular way (Rosenholtz ,1991). Members of the assemblage are capable of traversing the unknown in a multitude of ways because they have a great deal of expertise, comfort, and confidence in certain ways of traveling. The more inclusive the number of paths, tools, and strategies are, the greater the

and *forms* an organization. Selected information changes the organizational landscape. The decision to reduce class size was caused by the selection of information that identified class size as a critical variable for the improvement of education. Weick (1979) observed that the ecology of an organization's environment is enacted by actors (members of an organization). In this case, the induction of selected information resulted in a directional change for elementary schools.

3. Change and maintenance require energy from the same sources.
   Maintaining stability requires the use of the same pool of resources. Introducing change while maintaining stability can exceed an organization's reserves of energy. There is such a thing as too much complexity. Take, for example, your household; to maintain stability, you must expend energies. Repairs, upkeep, and bills are all examples of maintenance costs. Remodeling and expanding your house and landscaping your backyard are examples of new projects that require new energies. Bankruptcy can result from simultaneously trying to expand and maintain one's household.
4. Organizational workplaces cannot survive without psychic energies that fuel learning.
   Psychic energy is evidenced by a commitment to action. When systems rapidly lose psychic energy, they begin to shut down and conserve what remains. A "Back to Basics" philosophy is symptomatic of an organization's attempt to save resources. As one's sense of efficacy is depleted, it becomes difficult to continue what is being asked of the system. The loss of efficacy reflects a depletion of psychic energy. A conscious belief that one's work will yield positive results is an absolute necessity in the field of education.
5. Processes are needed to guide groups while they are engaged in the selection of critical information that will affect eventual outcomes.
   Decisions that introduce change must be sheltered and supported with sufficient sources of energy. To successfully introduce change, organizations must develop ways of conserving energy.
6. Clarity and meaning are post-scriptive not prescriptive.
   Reflecting on action provides clarity, and clarity promotes a greater sense of efficacy. Making sense is always done in conjunction with something that has taken place. One can never be sure of something until some action has taken place (Weick, 1969).
7. Leadership's new roles in an environment of unpredictability include: 1) the "art" of getting people to pay attention, 2) the ability to manage energy resources, and 3) the mastery of processes that reduce the uncertainty surrounding change.
   The greatest ideas are useless unless people are afforded the time and energy to pay attention to them.

Action mapping provides organizations with a process that integrates six critical components that are essential for transformational change. Each component serves as a nexus on a transformational circuit board. Linking each component reduces the amount of uncertainty in the environment and produces efficacious actions. The reduction of uncertainty will provide members of a workplace with increased levels of psychic energy, clarity, and wisdom.

likelihood that the organization will reach its destinations. This is *not* to say that members should not be introduced to new methods of traveling; it is to say that new methods are best introduced in an inclusive environment.

For example, improving literacy skills among all students is *not* about choosing among whole language, sight vocabulary, and phonics. Teachers with the capacity to employ multiple methods possess greater potential for success in reaching a diverse population of students. They have the capacity to teach inclusively and non-routinely, not exclusively and routinely. Weick (1979) states, "...common ends require diversified means."

Each member of the assemblage has an opportunity to engage in "actions as hypothesis." Members can travel alone, in pairs or in teams. "Actions as hypothesis" provides an unequivocal sense of purpose for each member of the assemblage. Only after taking action can one hope to make meaning of a journey. Clarity and wisdom come as a result of action. Waiting for the perfect plan to emerge does not add to the wisdom of an organization.

IV. Conservation of Energy

As mentioned earlier, the maintenance of stability and the simultaneous introduction of change expends enormous amounts of energy. The reality of a system that tries to maintain stability and also introduce change is marked by a rapid depletion of its resources. "Back to Basics" is an expression of an organization's desperate attempt to conserve energy, and can be understood as a system's response to conserve resources by rejecting change. Consequently, if change is to be successfully introduced, it will have to be done at the expense of some current practices.

If an organization wishes to overcome stability, the system must honestly anticipate the requirements of change and create processes to conserve its energy. Systems cannot expect to survive "the new" while maintaining "the old."

KEEP.....FIX.....STOP.....before.....STARTING is a process that serves to conserve an organization's reserves. KEEPING what works is not only prudent, it recognizes the historical efforts of an assemblage. FIXING or adjusting existing practices or tools can save a great deal of energy and resources. STOPPING practices and eliminating tools and strategies that no longer work are *non-negotiable* processes. STARTS are only to be engaged when an assemblage has assured itself of sufficient provisions for the journey.

V. Reflection on Action

Captains of seafaring ships are required to keep a log of activities during a voyage. Good logs describe daily activities and relationships among the members of the crew and passengers. Logs also account for daily expenditures of provisions. Determining whether decisions taken during the voyage were wise and worthwhile occur *after* decisions are enacted, not before. The members of the ill-fated spy vessel, *Pueblo*, were judged unfairly on the basis of an ill-constructed plan of action that had nothing to do with the actual circumstances of the *Pueblo's* capture (Saul, 1993). The Navy would have benefited by studying the logs and recollections of the crew of the *Pueblo*, rather than seeking to determine if the crew had followed an inappropriately contrived plan. Good logs deepen the shipowner's ability to gain preciseness and wisdom for future trips.

Reflections inform members of an organization

about the daily activities of the workplace. They tell the organization about effective relationships and they continuously inform the organization about the effectiveness of its actions. The act of reflecting provides much-needed feedback for a system. By keeping good logs, a system gains wisdom. Organizations that travel well recognize the importance of reflecting and build it into their practices as an integral part of their culture.

IV. Storytelling

Storytelling is an indispensable form of interpretation that shapes events within learning communities. As an historical compilation, members of an assemblage are asked to share interpretations of their journeys through stories. Stories can be told in a variety of modes that include visual accounts, ballads, metaphors, text, and voice. Telling good stories serves the organization with an effective means of collecting wisdom through experience. Storytelling serves as a primary means of gathering wisdom on a continuous basis.

The knowledge and experiences gained from a journey clarify future actions by identifying emerging patterns. Recognizing patterns in one's environment enables schools and organizations to travel with greater precision and added wisdom. Storytelling informs and forms the membership's understanding of its organization. In action mapping, storytelling serves as evaluation.

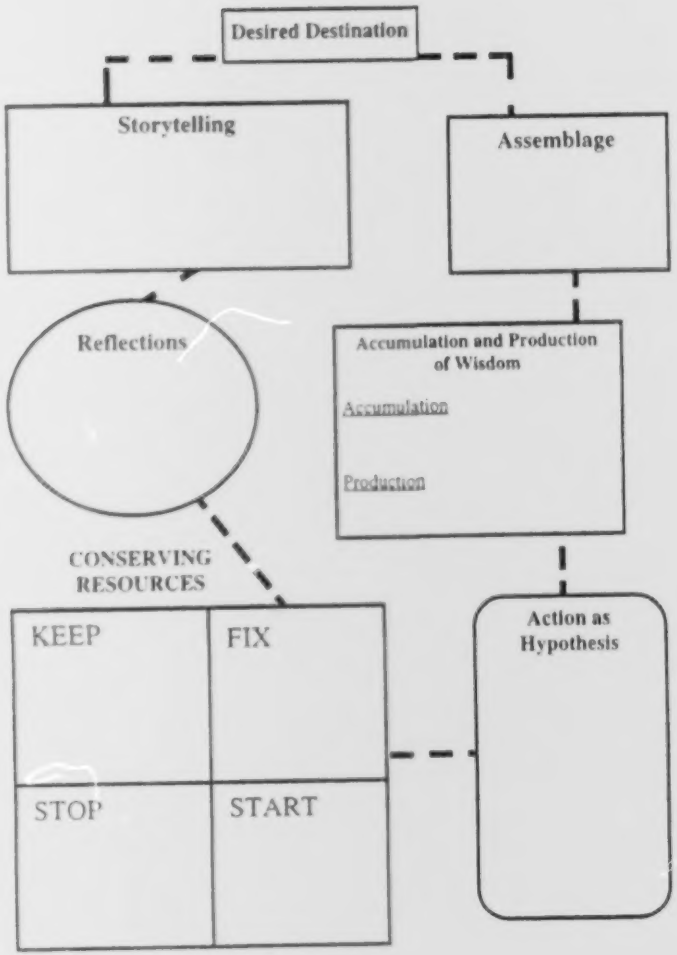
Conclusion

Lately, much has been written about the need for *communities of learning* (Senge, 1992; Sergiovanni, 1992; Stacey, 1992). However, little has changed in the way that most educational organizations plan for their futures. This article argues against many of today's planning strategies in favor of an action-based process that relies on the integration of key components of change. The goal of a learning community is best evidenced by the establishment of a continuous process of acquiring wisdom — wisdom gained through the recognition of information gained from actions. This form of wisdom continually expands personal understandings of the universe. The expansion of personal universes lies at the heart of our existence. How and what is learned provides information that informs and forms one's world. The relationships engendered serve to nurture a system's ability to access information. Organizations become wiser from information shared through their relationships.

Planning is not a prescriptive process for a predictable environment. Planning should be viewed as a sense-making activity that gathers knowledge about what has happened and what is happening. Planning should be viewed as a map-making activity that discovers pathways within emerging patterns and circumstances. Cartography, the art of making maps, looks back at voyages taken in the past and then serves up guides for journeys into the future.

It is hoped that action mapping will serve the reader as a tool for linking the known to the unknown. The best planning, like the best maps, offers many paths, not "a" path. Action mapping, at its best, tries to incorporate: 1) an analysis of the past and present, 2) a hypothetical means of journeying to the future, and 3) a process for reflecting on one's actions. Within action maps there are continuous feedback opportunities. These non-linear feedback opportunities allow assemblages the chance to adjust to real conditions.

Action Map



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Workshop 3: Leader as Change Agent

Action-Mapping Activity

- Distribute a set of the action-mapping activity materials to each participant.

- Although action mapping is a process that includes stakeholders, for this exercise, participants will go through the planning process independently. The purpose is to become familiar with the steps before attempting to do this with the participant's school community members.

- If participants feel more comfortable, they can work in pairs and take turns discussing/working on a change process for their school.

- Have individuals gather in small groups to talk about the process, what they anticipate to be challenges, and how they can overcome or prevent those challenges.

- Participants may also benefit from having the facilitator model the process for them using the samples provided. This may help participants feel more comfortable before attempting this independently.

Action Mapping Steps

Proximal planning is close in time and with a very specific goal in mind that gets you towards a larger goal.

Destination or Desired Change

- Determine the focus of the change effort.

Assemblage – Pulling Your Team Together

- Bring together a group of people who will be affected by the change.
- Intentionally gather an open and diverse group.
- Keep the group to a manageable number.

Accumulation and Production of Wisdom or Information

- Determine the "wisdom" of the group in relation to the desired change/destination.
- Determine what knowledge or skills are missing from the team.
- Build the knowledge base of the group or contact outside resources.

Action as Hypothesis or Suggested Actions

- "If I do this, then I expect this to happen."
- Brainstorm possible paths to take to get to the desired destination.
- Select the action(s).

Conserving Resources

- The action/change may require that some current practices be altered or stopped.
- Systems cannot expect to survive "the new" while maintaining "the old."
- Keep . . . Fix . . . Stop ...*before* . . . Starting is a process to conserve resources.
- Keep what works.
- Fixing or adjusting existing practices or tools can save a great deal of energy and resources. For example, if a school practice is not working towards the school goals for student achievement, but is taking a lot of effort to implement, that practice may need to be adjusted so that it helps to attain school goals and so that it takes less effort.
- Stop practices and eliminate tools and strategies that no longer work.
- Start when there are sufficient provisions for that journey.
- Utilize the Task, Talent, Time planning sheet for Start actions (triple-T chart).

Reflections and Storytelling

- Share interpretations of the process from identifying the change desired to the implementation of the action plan.
- These are a means of collecting wisdom on a continuous basis.
- These help identify patterns in our environment.
- The next journey will be with greater precision and added wisdom as we learn from our storytelling.
- Storytelling serves as evaluation.

Sample Action Map #1

Authentic Assessment

Desired Change:

- Parents, teachers, college admissions officials, and other outside constituents will have a better idea of what the students know and what they are able to do after each marking period at Pacific High School.

Information:

What do you know?	What do you need to know?
• Current means for reporting student work • Clear criteria for the assessment of student work at this time (include participation, effort, student skill levels, achievement in learning and understanding content, etc.) • Student grade distribution in all classes	• What is the relationship between students' skill levels and their actual classroom performance? • What are instruments that will clearly define students' skill levels at the beginning of each school year? • What kinds of information (besides grades) do people want to know regarding student achievement in each class? • How receptive is the faculty to changing from a grading system to an assessment system? • How much faculty development will be needed to move to an authentic assessment system? • What will the colleges expect in terms of student achievement? • How will greater scrutiny in terms of what students know and are able to do affect the students' chances for college admission and financial aid? • What compromises need to be made to accommodate authentic assessment and a grading system?

Suggested Actions:

- Meet with the faculty to agree on the action plan, especially the "Desired Change."
- Meet with the faculty to agree on an authentic assessment format that will be used and explained by the faculty.
- Spend one semester reviewing description sheets and their processes for assigning grades to students at the current faculty course end of a marking period.
- Provide professional development on authentic assessment.
- Set up a clear and effective reporting system based on authentic assessment.
- Provide teachers with opportunities to work with each other on authentic assessment practices in their classrooms.

Conserving Resources:

Keep	**Fix**
• Teachers' current practices for assessing student work until all major recommendations are approved • Some form of report card • Assigning students to classes based on skill level and academic interests	• The way teachers assign performance tasks • Assessment activities that show whether or not students meet the criteria for certain levels of achievement • Expectations of students to reflect exactly what they should know and be able to do (in measurable terms)
Stop	**Start**
• Meetings which address only a small group of teachers and focus on assessment issues in full faculty meetings • Interim reports based on grades only • Expecting students to add up points to get an idea of how well they're doing in a class • Assigning tasks that do not have clear objectives which can be measured and recorded	• Assigning meaning and relevant performance tasks that can be measured • Making sure that classroom performance tasks support departmental goals and objectives and Expected Schoolwide Learner Results

Reflections and Storytelling:

- How do clearly defined performance tasks and criteria affect students' abilities to meet Expected Schoolwide Learner Results?
- How much time and effort is expected of teachers to make changes in assessment practices?
- What support mechanisms are needed to get teachers started on developing performance tasks and articulating assessment expectations?
- What kinds of information can be provided to outside constituents regarding student achievement?
- How can authentic assessment support the scheduling of classes based on skill levels?
- How can authentic assessment point to needed changes in the curriculum, teachers' methods of teaching, and expectations of students?

Sample Action Map # 2
Student Activities

Desired Change:

- Students will develop stronger attachments to the school as a whole.

Information:

What do you know?	What do you need to know?
• The number of students involved in student council, athletics, yearbook, drama, etc. • The number of students who have expressed concerns about lack of school spirit, lack of campus activities with opportunities to know each other outside of the classrooms • The number of students in the previous years who have transferred from the school because of weak allegiance to the school	• The kinds of activities in which students have successfully participated in the past • The number of students interested in certain clubs and organizations • The faculty members who are willing to sponsor on-campus student activities • How much time is needed to accommodate student activities during the school day

Suggested Actions:

- Survey the student body to generate interest in clubs and organizations.
- Provide time for clubs and organizations to meet.
- Make sure clubs and organizations have clear goals and objectives.
- Give students opportunities to plan activities for clubs and organizations.
- Bring in guest speakers/coordinators who can advise clubs and organizations once in a while.
- Make campus resources available to clubs and organizations.

Conserving Resources:

Keep	Fix
• Support for interscholastic sports • Academically supported activities (yearbook, performing arts, drama, etc.) • Encouraging students to participate in non-school clubs and organizations	• Existing organization of the student council and the activity period so that they can support more clubs and organizations • School calendar to indicate days when clubs and organizations will meet to avoid conflicts
Stop	**Start**
• Planning activities on club days: set aside specific days of the week or weeks of the month • Assigning extra duties for the faculty during activity periods	• Providing students with opportunities to choose and support activities • Allowing students to suggest meaningful activities/clubs and organizations • Asking teachers to support each other in sponsoring/advising clubs and organizations

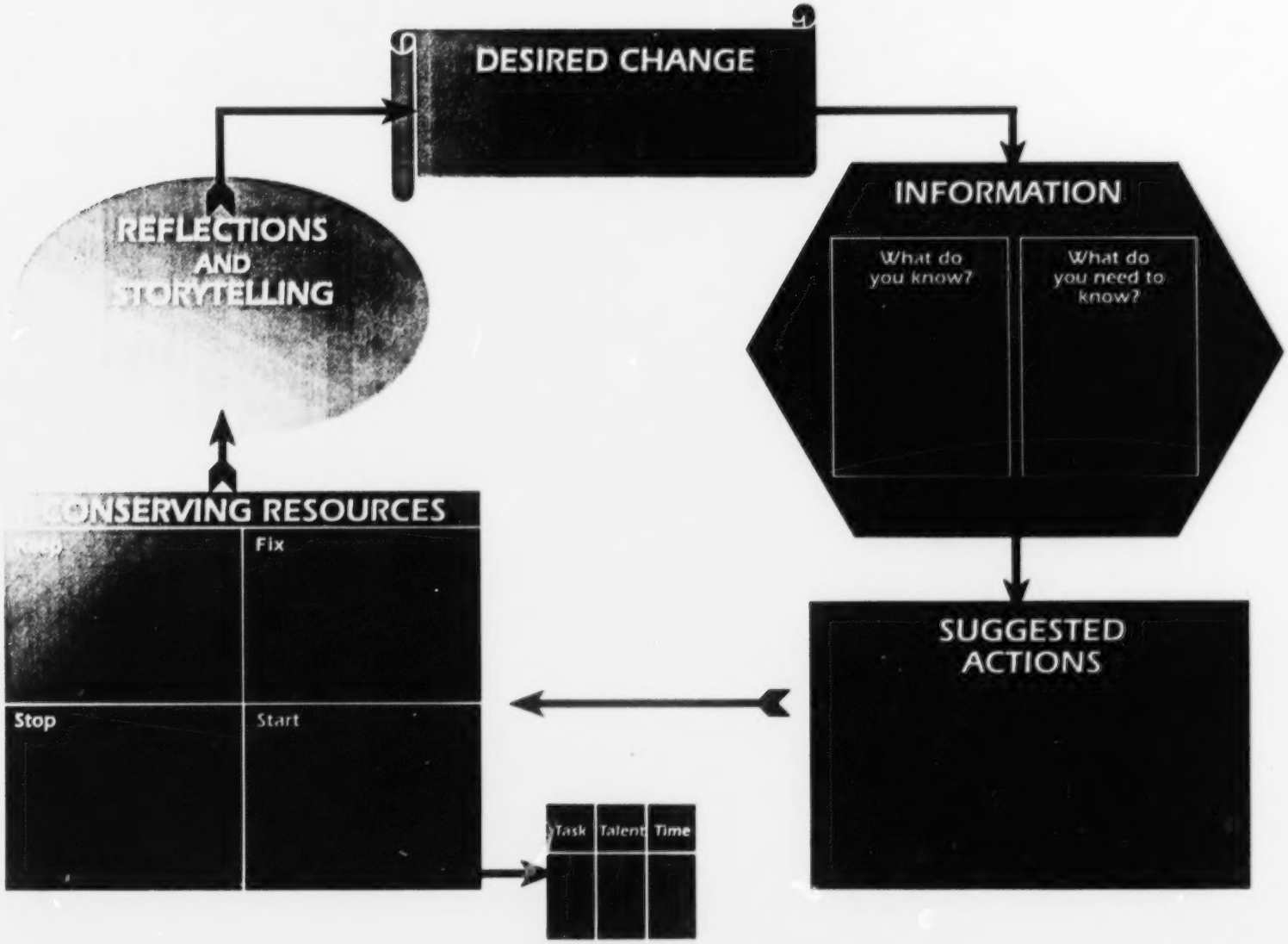
Reflections and Storytelling:

- How did students react to each of the following:
  - Giving suggestions for activities?
  - Choosing only one activity/club at a time?
  - Making the time available for clubs and organizations to meet?
- How did the students interact with each other and the advisors during club meetings?
- How can the students' reactions and levels of participation help to evaluate and make necessary changes to the program?

Workshop 3

Leader as Change Agent

Handouts & Notes for Action Mapping Activity



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Notes for Action Mapping

From *Action Mapping: A Planning Tool for Change*, by B. Matsui, 1997, August, The Claremont Graduate School. Adapted with permission of the author.

Guiding Questions

1. **Assemblage**
   - Who are the individuals affected by the change? Who are the individuals expected to deliver the product?
   - How will the relationships formed act as a conduit of new information?
   - How will the process take advantage of strengths and diversities in the community?
   - How will the process recognize and take advantage of the strengths of all the members of the community?

2. **Accumulation and Production of Wisdom**
   - What acquired wisdom can be collected and used in the process? What greater wisdom can be produced?
   - How will the organizational wisdom be determined, collected, clarified, categorized, archived, and distributed as a valuable organizational resource?
   - What actions will be taken to add to the organizational wisdom?
   - How will the accumulated and produced wisdom affect the action mapping process?

3. **Action as Hypothesis**
   - What paths, tools, and strategies will be used to reach the desired destination?
   - How will the different paths, tools, and strategies support a common desired destination?

4. **Conservation of Energy**
   - What works and is worth "keeping"? How will what you keep add to the assemblage of wisdom?
   - What existing practices or tools can be "fixed" and used in the process?
   - What practices and tools no longer work and should be "stopped"?
   - What should be "started" as a way of supporting the process?

5. **Reflection on Action**
   - What information should be kept to describe the daily activities of the organization?
   - What effective relationships and effective practices are described in the information about the organization's activities?
   - What kinds of feedback about the organization can help the organization gain wisdom?

6. Storytelling

- How does the storytelling help the organization collect wisdom through experiences?
- What knowledge and experiences described in the stories clarify future actions for the organization?
- What stories will inform and form the membership's understanding of the organization?

Action Map Timeline

Date to be Completed	Action	Lead Person
_____	Agree upon and describe the Desired Change	_____
_____	List and describe the roles of the individuals involved in the process	_____
_____	List and describe the Acquired and Produced Wisdom	_____
_____	Decide upon and carry out Actions as Hypotheses	_____
_____	Determine what needs to be Kept, Fixed, Stopped, and Started	_____
_____	Compile Reflections made on the process	_____
_____	Write and Tell the Story about the process and the outcomes	_____

Comments, Questions, Suggestions

Desired Change:

Information:

What Do We Know?	What Do We Need to Know?

Suggested Actions:

Conserving Resources:

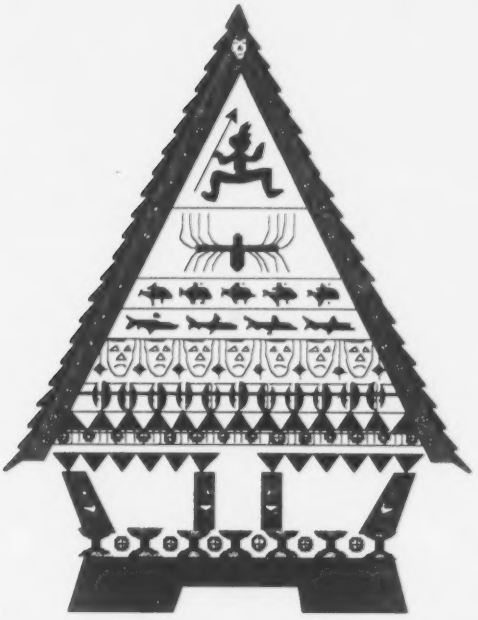
Keep	Fix
Stop	Start

Task	Talent	Time

Reflections and Storytelling:

Workshop 3

Leader as Change Agent



Evaluation Form

Workshop 3: Leader as Change Agent

Evaluation Form

What I liked best about the workshop . . .

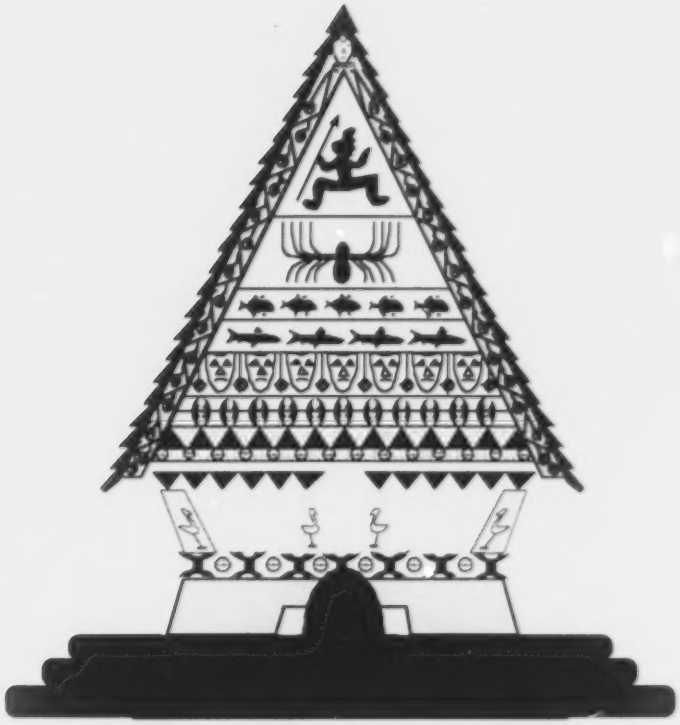
The thing(s) that could have been done differently . . .

Ideas I will use . . .

I would like more information on . . .

Any other comments . . .

Appendixes



Appendix Sections

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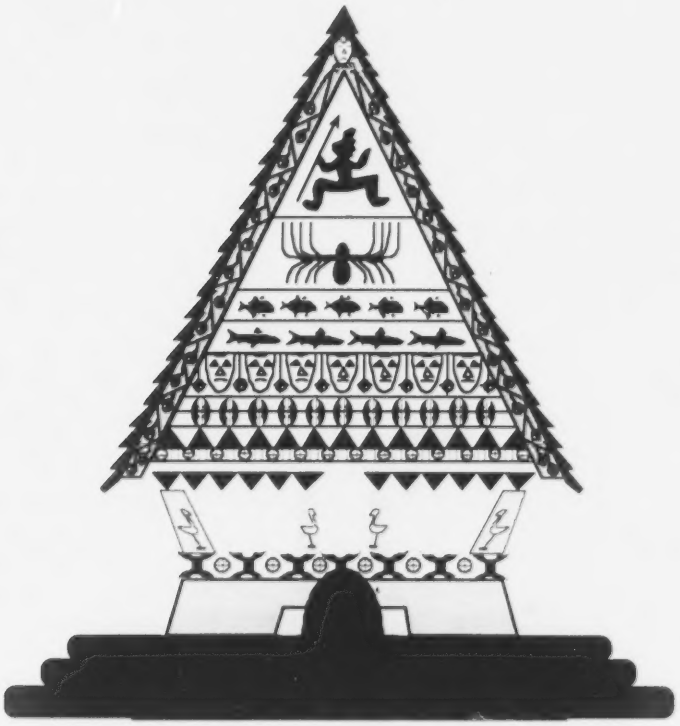
B. Facilitator Tools B-1
C. Group Processes C-1
D. Sample Evaluation Forms for Workshops D-1
E. Additional Resources E-1

Appendix A

Introduction to Dr. Bruce Matsui



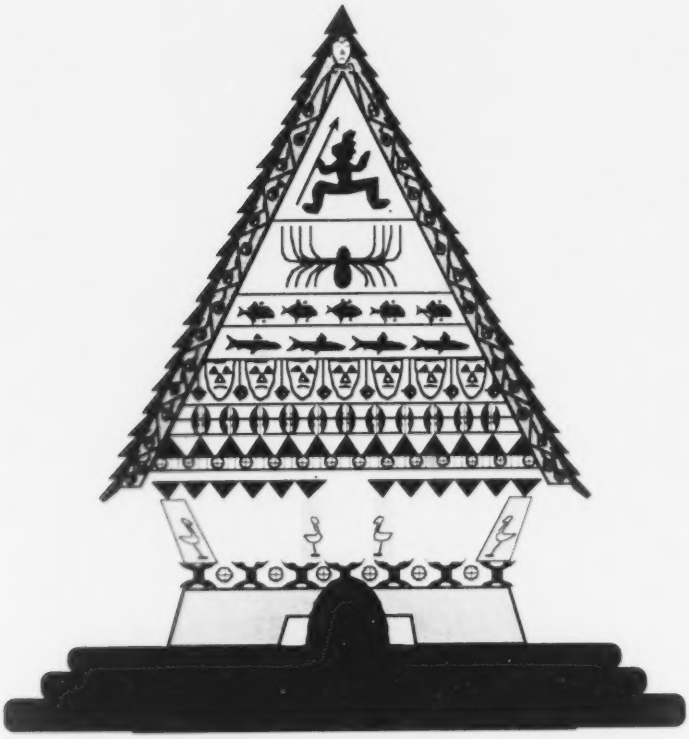
Introduction to Dr. Bruce Matsui

Dr. Bruce Matsui is a professor at the Center for Educational Studies, Claremont Graduate School of Education in California, where he developed a new Ph.D. program centered on the needs of urban inner-city schools. Dr. Matsui teaches courses in educational leadership, organizational development, and teaching and learning in public schools.

Dr. Matsui has served as Deputy Superintendent of the Pasadena Unified School District, Director of the Los Angeles County Center of the California Leadership Academy, and principal in the Montebello Unified School District for 17 years. He has worked extensively with administrators and educators and was integral in the establishment of two professional development academies in Hawai'i and leadership institutes throughout the Pacific region.

Appendix B

Facilitator Tools



Lessons Learned

We hope that the following list of hints for workshop leaders will be helpful. The list was compiled from the successes and challenges faced when planning and conducting workshops for a variety of groups.

- Be familiar with your audience in areas such as skill level, culture, and experiences.
- Communicate workshop purpose and logistics to participants in a timely manner.
- Prepare written agenda, charts, and handouts in advance.
- Written materials should be professional (free of errors) and visually appealing.
- Spend some informal time with participants as they arrive at the workshop.
- Have a sense of humor and use it appropriately.
- Always treat participants with respect. This includes allowing for breaks, being sensitive to cultural issues, and never patronizing participants.
- Select activities that are relevant to the workshop goals and are at appropriate skill levels. Keep a list of successful activities for future reference.
- Review workshop materials with participants. Allow some time for participants to become familiar with handouts. Never read handouts word for word to the participants.
- Use a variety of presentation styles to actively engage participants.
- Dress and conduct yourself in a professional manner.
- Plan more activities than needed.
- Monitor the energy level of the participants and the need for breaks.
- Plan the room setup to be comfortable for participants. Consider activities and the need for space as well as ease in focusing attention on the presenter.
- Write directions for activities ahead of time.
- Respond openly and honestly to questions.
- Honor time limits; start on time and end on time. Use incentives to get people back from breaks on time.
- Make the time participants spend with you meaningful. Plan, plan, plan for success. Be prepared.
- If using audio-visual aids, check to see that they are working properly before beginning the workshop.

Desired Outcomes

A desired outcome is what you have as an end result of the meeting or session.

Desired outcomes are written as clear and concise statements that identify the knowledge, skills, or products that will result from the meeting or session.

When developing a desired outcome, ask yourself, "What do I want to have accomplished by the end of the meeting/session? What will success look like?"

KEY: Always share the desired outcome with participants before beginning your meeting or session. This will inform participants so they will know the target and will be able to help the group reach that desired end result.

School sample desired outcomes:

- A list of ideas for the student government fund-raiser.
- An understanding of the new discipline plan.
- A plan for introducing the new discipline plan to parents.
- A procedure for identifying gifted and talented students.
- A plan for measuring the effectiveness of new teaching strategies.

Ground Rules

When people feel good about themselves and those around them, it is believed that the climate is positive. People are more likely to be open and honest, to share feelings and ideas, to encourage sharing in others, to accept the emerging differences, to take risks, and to develop trust when there is a positive climate.

Building a positive, accepting, trusting climate is a slow process. It does not occur at the beginning of a group experience; development begins with the first meeting.

One way to provide opportunities for a positive tone is to establish and agree upon some simple ground rules.

Ground rules describe the acceptable behavior of the group. It establishes behaviors that will make the group feel secure.

Sample ground rules are:

- We're all colleagues – let's respect each other.
- It's okay to disagree.
- Honor time limits.
- Everyone participates; no one person dominates.
- Listen to and consider the opinions of others.
- Participate by sharing your experiences and thoughts.

There is no magic number of ground rules. It is left to the group to decide what the rules are and the number needed to establish a positive climate.

Getting To Know You

The purpose of the ice breakers here is for people to get to know each other.

- Have participants arrange themselves in a line by height. "Mingle and let's see how quickly we can get things sorted out. Oh—one little twist—you cannot talk during this time."
- Have participants line up using first names in alphabetical order.
- Have participants line up by favorite ice cream flavors.
- Have participants line up by birthdays (month and day, not year).
- Have participants line up by what state they were born in.

Music to My Ears

Think of a list of songs people in your region are familiar with. Examples include:

- "Happy Birthday"
- "Jingle Bells"
- "I've Been Working on the Railroad"

Write the songs (one per) on a slip of paper for each participant or whisper the name of a song to each participant. Each person will be given a song from your list.

Now instruct participants to move around the room **ENTHUSIASTICALLY** humming "their" song. Have them find others with the same melody, link arms, and continue humming. The group should keep going until everyone has been identified.

Once they are in a group you can give them a task, depending on the purpose of forming these small groups. Sample tasks include the following:

- discuss a topic given by the presenter/facilitator;
- if this is the first time people are together, this can be a good time to introduce each other; participants can share three personal things about themselves;
- create a metaphor for what leadership means to the small group;
- generate a list of questions on a particular topic.

Getting to Know You

Guess the Fib

Guess the Fib is a fun way to get to know each other in a group. The idea is simple: Participants state two rather unbelievable facts and one believable fib. They announce all three as facts, and it is the job of the group to guess which one is the fib.

What's That On My Back?

As participants enter the room, tape an index card to their backs with a statement written on it. The participant must not see what is written on the card. Participants then mingle with the group and ask questions (requiring a "yes" or "no" answer only) as everyone tries to guess what is written on the card taped to their back.

Suggestions include:

- Holiday themes such as Christmas words
- Education themes with words relating to schools, etc.

This activity encourages people to mingle and talk.

Human Scavenger Hunt

Here is a fun and easy way for people to get to know each other. Give each person the scavenger hunt handout. Instruct participants to walk around the room and try to find someone in this group who matches each question. To make it more interesting, a person can sign on only one line. This forces participants to "hunt" for a lot of new friends.

1. Someone who was born in the same month. _____
2. Someone who likes the same sport. _____
3. Someone who is the youngest in their family. _____
4. Someone who likes to cook. _____
5. Someone who has taught for more than 10 years. _____
6. Someone who is an only child. _____
7. Someone who has seen the same movie at least three times. _____
8. Someone who has the same favorite dessert. _____
9. Someone who can speak three languages. _____
10. Someone who likes to read. _____
11. Someone who has two pets at home. _____
12. Someone who likes to exercise. _____

A large group discussion about the findings is a good way to end this activity. Offering a prize to the first person to complete the hunt adds excitement to this activity.

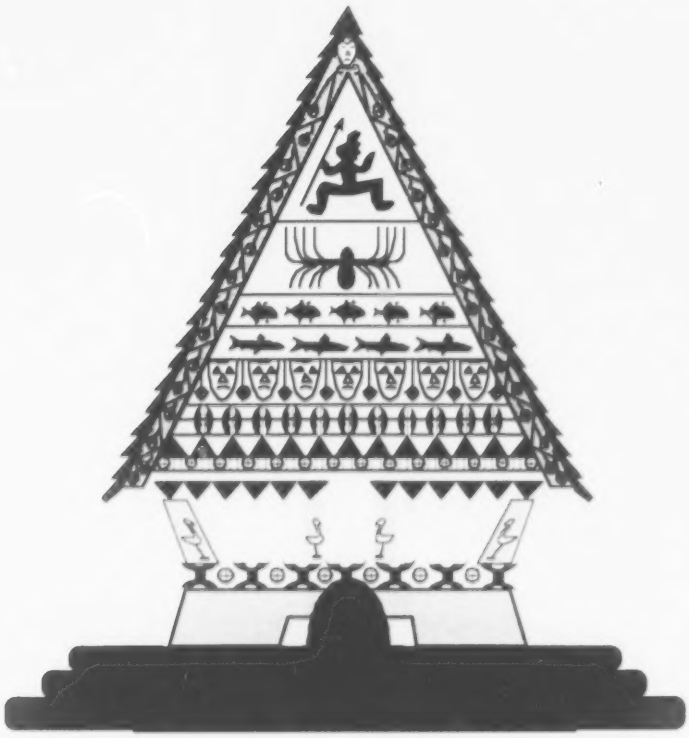
Generic questions to engage participants:

NOTE: These are additional questions that may be used at various points in your workshops. At times, the group may need to reflect on the content and need to have questions that stimulate their thinking.

- How do you already apply the information from this video segment?
- How do you already apply the information from this article?
- How did you react emotionally to the information presented?
- Do you agree or disagree with the author? Why?
- What were the most interesting insights you gained?
- What challenges might you encounter as you attempt to implement this change at your school?
- What does this mean to you as a school leader?
- What questions might you generate regarding this new material?
- In your own words, explain what (concept/idea) means.
- What did you just learn about leadership? What meaning does it have for you?
- Can you personalize what you just read? How does (concept/idea) impact you?
- What are the ways you can implement (concept/idea) at your school?

Appendix C

Group Processes



A Few Tricks for the Facilitator

Strategies to encourage participants to share:

- **Carousel Share** – Here is an example: If you would like participants to share their opinions about a part of the video series, write a statement about a concept presented in the video on the top of a piece of chart paper. (Do this on several sheets depending on the size of the group.) Ask participants to gather in groups of 4 or 5 and stand by one of the charts. On your signal, the small group will discuss the concept and write down their responses to the statement you wrote (i.e., "Examples of ways I know the innate model is not the belief at my school."). Participants would then list ways and evidence that show their school is in the efficacy model. At the end of a given time, the small group moves to the next chart, reads the responses of the group before them, and adds on to the list of responses. Groups can rotate several times. This strategy allows quiet people to contribute as they need not speak in front of a large group. This strategy also encourages sharing of ideas in a non-threatening manner.

- **Stand and Share** – For the brave at heart: Ask the large group a question (think of three strategies you can use to "romance" people with your new idea.) After a short "think" time, ask participants to stand. Starting on one side of the room, participants begin to share one idea. Rotate around the room so each person gets to share one idea at a time. As each person shares all three of their ideas, he or she sits down. Anyone in the room who has the same idea or a similar idea sits down also. The sharing continues until all of the participants are sitting down. Not allowing repeated ideas encourages active listening.

Jigsaw

The Jigsaw is a cooperative learning strategy that enables participants to develop or build upon expertise in a particular aspect of a topic, and then asks them to teach that aspect to others in a group. A Jigsawed Reading uses a set of text resources to develop expertise, while a Jigsawed Discussion builds upon the expert experiences of the participants. Either Jigsaw process typically takes between 60 and 75 minutes.

The whole group is first divided into "Home Teams." Each person on a Home Team is given responsibility for a different specific piece of the content to read and/or reflect upon. "Expert Groups" are then formed from participants having like pieces, and these groups conduct discussions and build expertise around their respective pieces. Individuals then return to their Home Team to teach their content. As a Home Team, they integrate their learnings and examine the implications of the knowledge in their work, thereby *fitting the pieces of the content puzzle together.*

The Jigsaw process can be used for the following specific purposes:

- Assessing Knowledge, Needs, Interests, and Attitudes
- Building a Common Vocabulary
- Building Consensus
- Engaging with Text
- Reflecting on Practice
- Structuring Learning
- Sustaining Thinking

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"K-W-H-L"

K-W-H-L processes are designed to explore the existing knowledge base of the participants and establish areas of focus for learning about a particular topic, prior to studying that topic. Following study, a K-W-H-L process can help participants debrief their learning. It can be an individual process, when used with a Thinking Log, and/or a group process. All participants can study the same topic or small groups can investigate different subtopics. This versatile inquiry process is also easily combined with a number of other group processes such as Think-Pair-Share, Case Analysis and Discussion, and Read and Reflect. Initially, participants respond to what they already "Know," what they "Want" to know, and "How" they might learn about a particular topic. They then take time to read about or investigate the topic at hand. Finally, they respond to the "L," which stands for what they have "Learned" about the topic.

K-W-H-L activities can be used for the following specific purposes:

- Assessing Knowledge, Needs, Interests, and Attitudes
- Building a Common Vocabulary
- Collecting and Analyzing Data
- Engaging with Text
- Exploring Multiple Perspectives
- Reflecting on Practice
- Structuring Learning
- Sustaining Thinking
- Tapping Prior Knowledge and Beliefs

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Critical Friend Review

The Critical Friend Review process is an effective way to help teachers, students, or administrators refocus their attention on a particular practice and understand one another's work at a deeper level. It provides friendly constructive feedback that can offer participants new points of view and rejuvenate their attitude and confidence in what they do. The process takes from 30 to 60 minutes, depending on whether it is done with partners or in teams and on the depth with which the practice, desired outcome, and feedback is described.

Initially, the *learner(s)* describe desired outcomes for the conference and a practice in detail. The *critical friend* (or team) asks questions to clarify the context of the work, then gives feedback about what seems significant about the practice. The *critical friend* (or team) then raises questions that will gently push the learner toward seeing the project from different perspectives. After this, both the *learner(s)* and the *critical friend(s)* reflect and write before switching roles and repeating the process.

The Critical Friend Review process can be used for the following specific purposes:

- Assessing Knowledge, Needs, Interests, and Attitudes
- Building a Common Vocabulary
- Building Consensus
- Exploring Multiple Perspectives
- Reflecting on Practice
- Starting Conversations
- Structuring Learning
- Sustaining Thinking
- Tapping Prior Knowledge and Beliefs

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Read and Reflect

Read and Reflect is a simple yet powerful process that structures the reading of text in a way that supports active reflection upon and sharing of learnings. It often makes use of a simplified "K-W-L" approach to focus learning before, during, and after reading. Read and Reflect begins as an individual process, and then it asks participants to share their reflections with others. Unlike a "Jigsawed Reading," which uses a set of text resources divided among participants, this process focuses reflection and sharing on the same reading.

Initially, participants respond to the first couple of questions in a Thinking Log in order to set the stage for their reading. Then, they take time to read the text resource before returning to the Log to respond to reflection questions. Finally, they share their learnings with others. Read and Reflect can be done as one continuous process. As an alternative, part or all of the individual reading and reflection can be done as "homework" preceding small and/or whole group sharing. With either approach, it usually takes about 15-20 minutes for participants to complete all questions in the Log.

Read and Reflect can be used for the following specific purposes:

- Assessing Knowledge, Needs, Interests, and Attitudes
- Building a Common Vocabulary
- Engaging with Text
- Reflecting on Practice
- Structuring Learning
- Sustaining Thinking
- Tapping Prior Knowledge and Beliefs

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Think-Pair-Share

Think-Pair-Share activity involves every participant by placing value on individuals' prior knowledge and beliefs, yet allowing for ideas to be extended by listening to the views of others. It is a very adaptable process that can be customized to fit many purposes and situations. Think-Pair-Share can also be easily combined with other group processes such as a Role Play, Simulation or Game, Case Analysis and Discussion, or K-W-H-L activities.

A Think-Pair-Share process begins by asking individuals to *think* about a response to one or more questions. Individuals then *pair* up with other participants to discuss responses.

Finally, partners *share* their responses with the whole group. A simple Think-Pair-Share is from 30-45 minutes in length, depending upon the complexity of the focus question(s).

Think-Pair-Share can be used for the following specific purposes:

- Assessing Knowledge, Needs, Interests, and Attitudes
- Building a Common Vocabulary
- Building Consensus
- Engaging with Text
- Exploring Multiple Perspectives
- Reflecting on Practice
- Starting Conversations
- Structuring Learning
- Tapping Prior Knowledge and Beliefs

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Storyboarding

The Storyboarding process is effective for facilitating, sharing, and organizing very concrete, practical ideas among participants. It is a good process for the initial engagement of individuals and for assessing and valuing their prior knowledge and expertise on a particular topic. Storyboarding (or the related Cardstorming or Affinity Diagram techniques) is also a powerful method for building consensus in a team and creatively solving real-world problems. It is frequently used in team decision-making, strategic planning, or design.

Initially, individuals respond to a particular question. Small groups of three or four are formed, and participants take turns sharing individual ideas, brainstorming, and recording group ideas on "Post-it" notes. The ideas are then sorted, clustered, and categorized within each small group. The process is from 45-90 minutes in length, depending on the size of the whole group and subgroups.

Storyboarding can be used for the following specific purposes:

- Assessing Knowledge, Needs, Interests, and Attitudes
- Building a Common Vocabulary
- Building Consensus
- Collecting and Analyzing Data
- Reflecting on Practice
- Starting Conversations
- Structuring Learning
- Tapping Prior Knowledge and Beliefs

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Mingle

The Mingle fosters participants' exploration of concerns, interests, and beliefs related to a particular topic. It also sets the stage for further action related to that topic. Participants begin exploring their individual priorities by ranking a set of statements from most important to least important in their present work. Participants then "mingle" in search of someone with similar priorities, and the two matched participants discuss their choices. The Mingle might then be repeated with someone that has identified very different priorities.

After mingling, individuals gather in small groups with others who share their priorities. Participants are asked to discuss the kinds of data, resources, and actions that would be helpful to them in learning more about their interest or in reducing their concerns.

A Mingle process takes about 30-40 minutes, depending upon the extent to which "like priority groups" meet and discuss issues. If a facilitator chooses to have a second Mingle where people meet that have very different priorities, it will take about 20 minutes longer.

The Mingle process can be used for the following specific purposes:

- Assessing Knowledge, Needs, Interests, and Attitudes
- Building a Common Vocabulary
- Building Consensus
- Collecting and Analyzing Data
- Exploring Multiple Perspectives
- Reflecting on Practice
- Starting Conversations
- Structuring Learning
- Tapping Prior Knowledge and Beliefs

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Point and Counterpoint

The Point and Counterpoint process engages participants in an informal debate related to an important issue. The use of a "friendly adversary" model enables participants to develop and present arguments that support differing points of view, thereby gaining a deeper understanding of a complex issue. Unlike formal debate, this process brings closure to the discussion by seeking consensus around a position.

The process begins with the presenting of an issue that invites differing points of view. Through sub-group brainstorming, two or more significant points of view are explored. Groups further develop, alternating between a *point* and *counterpoint*. The whole group then identifies the most compelling arguments and significant learnings, striving for consensus around a position. The Point and Counterpoint process is from 45-60 minutes in length.

Point and Counterpoint can be used for the following purposes:

- Assessing Knowledge, Needs, Interests, and Attitudes
- Building a Common Vocabulary
- Building Consensus
- Engaging with the Text
- Exploring Multiple Perspectives
- Starting Conversations
- Structuring Learning
- Sustaining Thinking
- Tapping Prior Knowledge and Beliefs

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Magnetic Words

Magnetic Words is a warm-up process that facilitates interaction among participants, allowing all to learn about a particular topic and build a common vocabulary. It is a great process to use initially with a group for accessing prior knowledge and experience of individuals within a group. This process generally takes 25-35 minutes, although it will take a little longer with larger groups.

Magnetic Word posters are placed around the room on the walls. Participants are asked to go to a word/phrase/question that "attracts or repels them" and to introduce themselves and converse with others about their words. Conversations are then synthesized and shared with the whole group.

The Magnetic Words process can be used for the following specific purposes:

- Assessing Knowledge, Needs, Interests, and Attitudes
- Building a Common Vocabulary
- Exploring Multiple Perspectives
- Reflecting on Practice
- Starting Conversations
- Structuring Learning
- Tapping Prior Knowledge and Beliefs

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Four-Box Synectics

The Four-Box Synectics process is a fun and imaginative warm-up process that assists the facilitator(s) in understanding the general beliefs of a group. This process can stimulate creative thought about a topic and help a group begin to cultivate personal or organizational metaphors related to that topic. This process takes about 15 to 20 minutes.

The facilitator begins by drawing a four-box grid on chart paper and asking volunteers to choose four objects. Small groups of participants then brainstorm the ways that a particular topic is like and/or unlike each of the objects. Their metaphors are then shared with the whole group.

The Four-Box Synectics process can be used for the following specific purposes:

- Building a Common Vocabulary
- Exploring Multiple Perspectives
- Reflecting on Practice
- Starting Conversations
- Structuring Learning
- Tapping Prior Knowledge and Beliefs

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Tips for Effective Questioning

- Ask learners open-ended questions.
- Develop questions carefully—a few "higher-order" questions are more productive than a lot of "lower-order" questions.
- Use precise language—this cues learners' responses and enables them to associate specific language with thinking responses.
- Practice using "wait time" –provide 3-5 seconds of silence after asking a question and after receiving a response.
- Call on learners randomly.
- Acknowledge all learners' responses, either passively, as with a nod of the head, or actively, as in paraphrasing their responses.
- Withhold criticism when responding to learners.
- Paraphrase more than praise.
- Use praise sparingly; when you use it, give criteria.
- Rephrase your questions rather than repeat them.
- Ask learners to "think about thinking."
- Plan for productive interaction.
- Encourage learners to ask questions.

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Guidelines for Promoting Effective Discussion

- Accept and value all ideas presented.
- Build on each participant's ideas.
- Seek justification of ideas.
- Examine alternative points of view.
- Analyze ideas, examining underlying beliefs and assumptions and possible consequences.

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Guidelines for Brainstorming

Alternative A: Free-Response Brainstorm

- Remember that all ideas are ok, withholding comments and criticisms about ideas.
- Be creative in your suggestions.
- Expand and build upon the ideas of others.
- Or, contract, narrowing down the focus of the ideas from general to specific.
- Record every idea on a list that everyone can see.

(Adapted from the following source: The Regional Laboratory Network. (1995). *Facilitating systemic change in science and mathematics education: A toolkit for professional developers.* Andover: The Regional Laboratory for Educational Improvement of the Northeast and Islands. Appendix B-1-3.)

Alternative B: Turn-Taking Brainstorm

- Take turns giving ideas about a topic, one idea per turn.
- Record every idea on a list that everyone can see.
- Withhold comments and criticisms about ideas.
- Keep the tempo moving with an "anything goes" attitude, making all participants feel that their ideas are valid.
- Permit members to "pass" if they have no idea to give during a turn.
- Keep on taking ideas until everyone has said "pass" or until it's time for the brainstorming session to end.

Useful Ideas to Enhance Brainstorming

- Build: Think about how one idea builds upon or connects to another idea.
- Expand: Think about how something would be if it were larger.
- Contract: Think about how something would be if it were smaller.
- Substitute: Think about how something could be used in place of something else.
- Change: Think about how a characteristic of something (either product or process) could be changed or modified.

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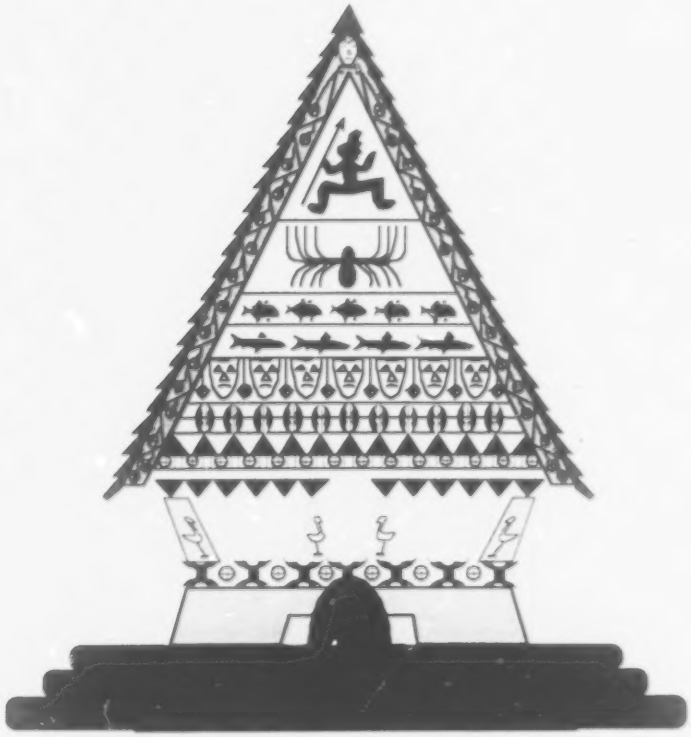
Appendix D

Sample Evaluation Forms for Workshops



This session was . . .

I learned . . .

I will use . . .

I would like to see . . .

Workshop Evaluation Form

Workshop Title: _____

Presenter: _____

Date: _____ Location: _____

Please complete the sentence, then give SPECIFIC examples. If more space is needed, use the back. Turn in this form before leaving. Thank you!

The content was

The presenter(s) was/were

The format of the workshop was

The MOST valuable part was

The LEAST valuable part was

Additional comments:

Evaluation

Workshop Title: _____

Presenter: _____

Date: _____ Location: _____

Please circle the appropriate number, 5 being the most positive response.

	Low				High
1. How effective was the presentation?	1	2	3	4	5
2. Was the presentation at the appropriate level?	1	2	3	4	5
3. How useful were the handouts?	1	2	3	4	5
4. How well were your objectives met?	1	2	3	4	5
5. How suitable were the facilities?	1	2	3	4	5
6. What is your overall rating of this workshop?	1	2	3	4	5

Please comment on the following:

1. What I like best about the workshop . . .

2. The thing(s) that could have been done differently . . .

3. Ideas I will use . . .

4. I would like more information on . . .

5. Any other comments . . .

Thank you for taking the time to attend this workshop and completing the evaluation form.

In today's session, I found the following:	
Positive . . .	Interesting . . .
Needs Improvement . . .	If I could say anything else . . .

Workshop Evaluation Form

Workshop Title: _____

Presenter: _____

Date: _____ Location: _____

1. What are some ideas/concepts that were validated by this workshop?

2. What are some new ideas/concepts that I learned at this workshop?

3. How has this workshop been helpful to me?

4. What did I like about this workshop?

5. Suggestions to make this workshop better/more effective:

_____

_____

_____

_____

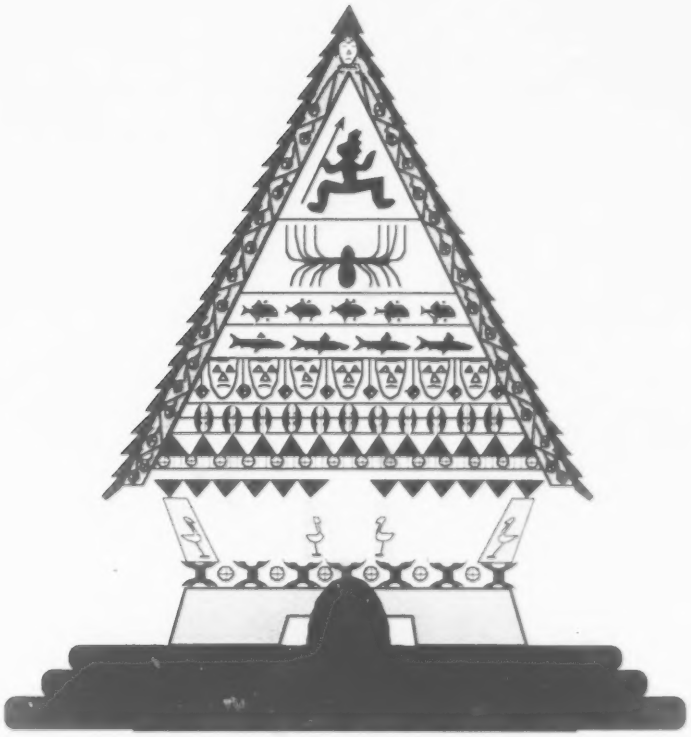
_____

During this workshop:

New Ideas I got . . .	Actions I'm going to take . . .
Questions I have . . .	Feelings I've experienced . . .

Appendix E

Additional Resources



Additional Resources

Suggested Websites to Visit

Vygotsky

1. **www.bestpraceduc.org/people/LevVygotsky.html**
2. **www.sk.com.br/sk-vygot.html**

Resiliency

1. **www.ncrel.org** then click on the search icon, type in "resiliency" and click search and a list of resources on resiliency should appear.
2. **www.resiliency.com**

Piaget

1. **www.piaget.org**
2. **www.teachers.ash.org.au/teachereduc/indexTE.html** then on the left hand black sidebar click on "Jean Piaget" and that will take you to information on Piage and Vygotsky.

Feuerstein

1. **www.iclp.org**
2. **www.newhorizons.org/trm_feuerstein.html**

School Change Process

1. **www.essentialschools.org** then use the search engine and search for "school change".
2. **www.ed.gov/pubs**

Brain

1. **www.newhorizons.org/blabhtml**
2. **www.ascd.org**

Additional Resources

FOCUS, ESSENCE, AND ORDER: Strategies for Increasing the Probability of Success in Literacy

by Bruce I. Matsui, Claremont Graduate University

Paper taken from the Leadership Institutes sponsored by PREL:
"Making Sense of Learning Communities The Leadership Role for the 21st Century"
(Presenters- Monica Mann and Bruce Matsui)

A Focal Point – The Central Purpose of Schooling

Schooling as we have come to understand it, has a life of its own. People in schools begin the year by getting re-acquainted with one another, as they do this they begin the yearly task of assessing each member of the community (parents assess teachers, teachers assess students, administrators assess parents and teachers, and teachers assess administrators. As a result of these early rounds of informal assessments, agreements are negotiated for the year. Negotiated agreements are then acted upon by members of the school community.

As the year progresses, mediations take place when conflicts arise. The learning cycle for students begin in mid-October and end in May. After the leaning cycle concludes, students are formally assessed, rewards and sanctions are meted out, and the year comes to an end. The ebb and flow of this cycle characterizes the life of most school communities and the daily routines associated with this cycle produce remarkably predictable results.

Leaders are asking schools to interrupt this annual flow and ask questions about, "The focus, essence, and order of what we have come to know as schooling?" As practiced, What is your school about? For what purpose do you open your doors each morning? And should your school continue to move in its current patterns?

We can address these questions in the following manner. What should your school be about? For what purposes do you convene your school for 180 days a year? And, what happens to your students if your pattern of schooling remains as it is today?

Becoming Better Schools

All schools face the problem of how to (a)set meaningful standards for students and (b) determine what to do about students who **fail** to meet such standards. Traditionally, educational practices provide only the minimum amount of tools to work with; tools such as books, workbooks, curriculum guides, and standardized tests. Unfortunately, the public's perceptions of the adequacy of such tools has caused many schools to appear incapable of solving their own problems. Often, in the process of measuring success, schools have lost the capacity to determine (a) what is good or bad about their school and (b) how to correct and improve their situations. When this occurs, many schools cast themselves as victims of a flawed process, rather than responsible parties for results. Two important questions emerge for schools who find themselves in this predicament:

1. **Can we devise a system of accountability that enables a school to gain knowledge of its own situation and that results in an effort to self-correct and improve?**

2. **What information and skills are needed by schools to carry out this task?**

To answer these questions, a school must first make sense of its current practices and then share practices from different places. In addition, schools must behave in ways that invite engagement from students, community members, district members, and other interested parties.

Worksheet for School Administrators

How does your school use the products of student learning as a means of assessment?

(Please respond to the following):

1. *Who succeeds and who fails in your school? (Among Faculty and Students)?*

2. *What data did you use to answer the question above?*

The Work

The current thinking about school plans, posit that they work better when goals are embraced rather than imposed. That is, people at school sites are more likely to implement a program that they think is fair and enlightened than one that is externally imposed. Therefore, the development of site level sensmaking practices is extremely fruitful.

The following tasks can serve as a process for the development of accountability indicators that answer the much asked question, "How are the students performing?"

1. **Developing robust school indicators**: Increasingly, school districts are turning from single measures to multiple indicators of how well a school is doing because a single indicator often leads to an inaccurate diagnosis of a school's health. Multiple indicators are also more meaningful to classroom teachers. Just as a physician needs a battery of tests rather than a simple measurement of body temperature, a school needs information that they can use rather than a test score that tells them that there is a problem. These indicators should include information about how students were taught, changes in student conditions, and other important variables.

2. **A process of engagement:** In order to determine the level of student leaning, people involved in measuring the quality of student work must share common understandings of "success." Staff development activities in this context will require time to share understandings of what distinguishes quality work from the ordinary or unacceptable. If high expectations are a critical component of increased productivity, time must be set aside for teachers to focus on a common understanding of what determines quality. Once determined, the school must invite comments from the consumers of its work, the students and community.

3. **A reliable feedback system:** Most data about school performance do not help the people in schools improve. I am speaking here of single measures, such as a percentile score on a standardized exam. Test scores are frequently published after the students have departed, and the level of detail gives few clues about what they might do differently. A more powerful improvement process uses the daily processes of the classroom to create data, which is then fed back to the members of the school to inform corrective actions. That is to say, feedback of student performances from daily procedures is much more powerful than data extracted artificially. For example, "an on demand" writing sample from every student yields more information than the score associated with a standardized test.

Assessment Practices

- At your school, how is information about the quality of student work shared?
- Is this information used to inform decisions?
- Do staff development activities emerge from such information?
- How much time is currently spent on a collegial assessment of student work?

Your Pattern

At your school, are there emergent or continuous patterns of failure that can be attributed to students who share certain characteristics?

- Do students who come from lower socio-economic homes perform consistently better or worse than students who come from more affluent homes? Do girls do better than boys or vice versa?
- Which students are in your honors and AP classes as opposed to your marginalized classrooms (special education, Title I, continuation programs)? Can you see some similarities in these groups?
- Are there similarities in: the groups that earn college credits? The groups that fail to graduate? The groups that participate in risky activities such as drugs, alcohol and tobacco, early pregnancies, or gangs?
- Are there similarities in students who participate in school sponsored activities such as sports, band, or clubs?

Answer The Following Questions

- How did the present situation come to be?
- What will or should YOUR school do about this data?